

TODAY'S HUNTER



a guide
to hunting
responsibly
and safely

THE TEN COMMANDMENTS OF FIREARM SAFETY



1. **Watch that muzzle!** *Keep it pointed in a safe direction at all times.*
2. **Treat every firearm with the respect due a loaded gun.** *It might be, even if you think it isn't.*
3. **Be sure of the target and what is in front of it and beyond it.** *Know the identifying features of the game you hunt. Make sure you have an adequate backstop—don't shoot at a flat, hard surface or water.*
4. **Keep your finger outside the trigger guard until ready to shoot.** *This is the best way to prevent an accidental discharge.*
5. **Check your barrel and ammunition.** *Make sure the barrel and action are clear of obstructions, and carry only the proper ammunition for your firearm.*
6. **Unload firearms when not in use.** *Leave actions open; carry firearms in cases and unloaded to and from the shooting area.*
7. **Point a firearm only at something you intend to shoot.** *Avoid all horseplay with a gun.*
8. **Don't run, jump, or climb with a loaded firearm.** *Unload a firearm before you climb a fence or tree, or jump a ditch. Pull a firearm toward you by the butt, not the muzzle.*
9. **Store firearms and ammunition separately and safely.** *Store each in secured locations beyond the reach of children and careless adults.*
10. **Avoid alcoholic beverages before and during shooting.** *Also avoid mind- or behavior-altering medicines or drugs.*

TODAY'S HUNTER

a guide to hunting responsibly and safely

Distributed by Kalkomey Enterprises, Inc. Printed in the U.S.A.

Copyright © 2005 by Kalkomey Enterprises, Inc. All rights reserved. No part of this publication may be reproduced in any form or by any process without permission in writing from Kalkomey Enterprises, Inc. Effort has been made to make this publication as complete and accurate as possible. All references contained in this publication have been compiled from sources believed to be reliable, and to represent the best current opinion on the subject. Kalkomey Enterprises, Inc. is not responsible or liable for any claims, liabilities, damages, or other adverse effects or consequences to any person or property caused or alleged to be caused directly or indirectly from the application or use of the information contained in this publication. TH1105-P0106

Photo & Illustration Credits

Texas Parks & Wildlife

Goose Hunter
..... copyright page
White-tailed Deer 86
Canada Geese 86
Scaled Quail 86 & 93
Bighorn Sheep 87
Elk 87
Collared Peccary 88
Coyote 88
Common Raccoon . . . 89
Nine-banded Armadillo 89
American Badger 90
Eastern Fox Squirrel . . 90
Prairie Dog 90
Hog-nosed Skunk 90
Spotted Skunk 90
Striped Skunk 90
Common Gray Fox . . . 91
River Otter 92
Ringtail 92

Black-tailed Jackrabbit . 93
Northern Bobwhite . . 93
Montezuma Quail . . . 94
Mourning Dove 94
White-winged Dove . . 94
Ring-necked Pheasant . 95
Wild Turkey 95
Brown Pelican 103
Golden Eagle 103
Common Barn Owl . . 104
Burrowing Owl 104
Great Horned Owl . . 104
Tom J. Ulrich®
Mule Deer 86
Black-tailed deer 87
Woodland Caribou . . . 87
Moose 87
Mountain Lion 88
Lynx 88
Gray Wolf 88
Mountain Goat 89

Black Bear 89
Grizzly Bear 89
American Beaver 90
Porcupine 90
Red Squirrel 90
Wolverine 91
Common Muskrat . . . 91
Red Fox 91
Kit Fox 91
Mink 92
Long-tailed Weasel . . 92
Fisher 92
Pine Marten 92
Rock Dove 94
American Woodcock . . 94
Gtr Prairie Chicken . . 95
Lssr Prairie Chicken . . 95
Ruffed Grouse 95
Wilson's (Common) Snipe 103
Northern Harrier . . . 103
Barred Owl 104

U.S. Fish & Wildlife Service

Whooping Crane . . 82 & 102
Pronghorn 87
Bald Eagle 103

Roland L. Bell

Eastern Timber Wolves 86

Lavonda Walton

Grizzly Bear 86

R. V. Shiver

Bobcat 88

Ryan Hagerty

Eastern Gray Squirrel . . 90

Hollingsworth

Nutria 91

Gambel's Quail 94

Ed McCrea

Virginia Opossum 93

William Janus

Eastern Cottontail Rabbit . 93

F. Eugene Hester®

American Crow 95

Bob Hines

Illustrations reprinted from
Ducks At A Distance,
A Waterfowl Identification Guide
..... 96-102

Don Baccus Photography®

Sandhill Crane 102

John Foster

American White Pelican . 103

Luther Goleman

Peregrine Falcon 104

Don Pfitzer

Eastern Screech Owl . 104

Texas Parks & Wildlife

Goose Hunter.cover
White-tailed Deer . . .cover
..... & inside cover
Northern Bobwhite .cover
Collared Peccary . . .cover

Black-tailed Jackrabbit
.....cover
Dog Pointingcover

Dave Menke

Hunters in Boat
..... inside front cover

T.A. Blake

USFWS Officer
..... inside front cover

Steve Farrel

Hunter with Dog
..... inside front cover

Ryan Hagerty

Duck Hunters. back cover

The Ten Commandments**of Firearm Safety**inside cover**Chapter One: Introduction to Hunter Education***How hunter education came about; goals and funding of hunter education today ...*

Chapter One Learning Objectives.....	4
Why Hunter Education?.....	4
Responsibility, Safety Skills, Knowledge, and Involvement.....	5
Hunter Education Funding Sources	5

Chapter Two: Know Your Firearm Equipment*Parts of firearms and ammunition; how they operate ...*

Chapter Two Learning Objectives.....	6
What Is a Firearm?	6
Basic Parts of a Firearm	6
Parts of a Bolt-Action Rifle	7
Parts of a Pump-Action Shotgun	8
Parts of a Handgun	8
What Is Ammunition?.....	9
Basic Components of Ammunition.....	9
Rifle and Handgun Cartridges.....	9
Shotshells	10
How a Firearm Works	11
Common Features of Firearms	12
Firearm Actions	12
Safety Mechanisms.....	14
Magazines.....	14
Sights	15
Differences Between Rifles, Shotguns, and Handguns.....	16
Rifling in the Rifle or Handgun Bore	16
A Rifle's or Handgun's Caliber.....	17
A Shotgun's Gauge.....	17
Shotgun Choke and Shot Pattern	18
Match Firearms and Ammunition...Correctly!.....	19
Know Your Firearm's Range.....	20
Cleaning Your Firearm.....	21
Storing Your Firearm	22

Chapter Three: Basic Shooting Skills*How to hold, aim, and fire rifles, shotguns, and handguns ...*

Chapter Three Learning Objectives.....	23
Good Marksmanship and Accuracy.....	23
Know Your Accuracy Limits	23
Rifle Shooting	24
Sight Alignment.....	24
Dominant or Master Eye.....	24
Sighting-In a Rifle	25
Sighting-In Procedure	26
Rifle Firing Techniques	26
Shooting Positions	27

Shotgun Shooting	28
Matching Choke to Your Quarry.....	28
Patterning Your Shotgun	29
Shotgun Firing Techniques	29
Leading the Target	30
Handgun Shooting	31
Loading and Handling.....	31
Position and Grip.....	31
Sight Alignment.....	31
Aiming	31
Shooting.....	31

Chapter Four: Basic Hunting Skills*How to locate, find, or attract your prey; where to aim for a clean kill; the basics of field care of game ...*

Chapter Four Learning Objectives	32
Planning and Preparation	32
Know Your Quarry	32
Animal Characteristics	33
Hunting Strategies.....	33
Still Hunting	33
Stalking	33
Posting	34
Ground Blinds	34
Elevated Stands	34
Game Calling.....	34
Driving.....	34
Flushing.....	35
Dogs.....	35
Trapping.....	35
Vital Shots.....	36
Where to Shoot	36
Types of Shots	36
Approaching Downed Game.....	37
Field Care of Game	38
Field Care Basics	38
Transporting Game	39

Chapter Five: Primitive Hunting Equipment and Techniques*Parts of muzzleloaders and bowhunting equipment; how to safely handle, hold, aim, and fire these primitive sporting arms ...*

Chapter Five Learning Objectives	40
Know Your Muzzleloader	40
Basic Muzzleloader Safety and Skills	41
Cleaning a Muzzleloader	41
Loading a Muzzleloader.....	42
Unloading a Muzzleloader	43
Firing a Muzzleloader.....	43
Know Your Bow and Arrow	44
Common Bow Types	44
Stringing a Bow	45
Parts of an Arrow	45
Common Types of Arrowheads	46

Know Your Crossbow	46
Bowhunting Safety and Skills	47
Bow Shooting Safety	47
Bow Shooting Position	47
Nocking an Arrow	48
Drawing and Anchoring the Bow	48
Aiming the Bow	49
Holding and Releasing the Bow	49

Chapter Six: Be a Safe Hunter

*How to safely load and unload, transport, and carry firearms;
how to hunt safely ...*

Chapter Six Learning Objectives	50
Why Firearm Safety Is Important	50
Firearm Safety in the Home	50
Hunting Incidents	51
Four Main Causes of Hunting Incidents	51
Safely Carrying Firearms in the Field	52
Proper Field Carries	53
Selecting the Right Carry with Others	54
Crossing Obstacles	55
Safely Loading and Unloading Firearms	56
Safely Transporting Firearms	57
General Rules	57
Safe Zone-of-Fire	58
Other Safety Considerations	59
Self-Control and Target Identification	59
Accuracy	59
Alcohol and Drugs	59
Hunting from Elevated Stands	60
Types of Elevated Stands	60
Safety Harnesses	61
Elevated Stand Location	61
Elevated Stand Safety	61
Hauling a Firearm into a Stand	61
Hunting with Boats	62
Trip Preparation	62
Transporting Firearms in a Boat	62
Zones-of-Fire in a Boat	62
Surviving Water Emergencies	63
Hypothermia	63
Hunting with All-Terrain Vehicles	64

Chapter Seven: Be a Responsible and Ethical Hunter

*Characteristics of responsible hunters; presenting a positive public
image through legal and ethical practices and through behavior ...*

Chapter Seven Learning Objectives	65
Why Do We Have Hunting Laws?	65
Game Conservation	65
Safety, Opportunity, and Funding	65
Fair Chase	65
The Hunter's Image Matters	66

Hunter Ethics	66
The Hunter's Ethical Code	66
Personal Choice	67
The Five Stages of Hunter Development	68

Chapter Eight: Preparation and Survival Skills

*How to prepare for a safe hunting trip and deal with emergencies
that may arise while hunting ...*

Chapter Eight Learning Objectives	70
Importance of Planning and Preparation	70
Physical Conditioning	71
Clothing	71
Topographic Maps and Compasses	72
The Compass	72
Declination	73
Plot Your Progress	73
Survival Skills	74
Shelter	74
Starting a Fire	75
Signaling for Help	75
Water	75
Food	75
Coping with Extreme Weather	76
Hypothermia	76
Frostbite	77
Heat Exhaustion	78
Heat Stroke	78
Basic First Aid	79
Bleeding	79
Broken Bones	79
Burns	79
Carbon Monoxide Poisoning	80
Chest Wounds	80
Shock	80
Snakebite	80

Chapter Nine: Wildlife Conservation

*How wildlife is conserved; the hunter's role in
wildlife management ...*

Chapter Nine Learning Objectives	81
Wildlife Conservation	81
Lessons in Wildlife Management	82
Habitat Management	82
Carrying Capacity	84
The Hunter's Role in Wildlife Conservation	84
Wildlife Management and Conservation Principles	85
Wildlife Management Practices	85
Wildlife Identification	86
Large Mammals	86
Small Mammals	89
Upland Birds	93
Waterfowl	96
Wetland Birds	102
Birds of Prey	103

Chapter Review Exercises	105
--------------------------------	-----

Objectives

You should be able to...

- Give two reasons why hunter education is important.
- Name five sources of hunter education funding.
- Name three hunting-related projects for which the Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act) funds are used.
- Describe the behavior of a responsible hunter.
- Give an example of how you can be involved in making hunting a respected sport.

added "Act"



International Hunter Education Association (IHEA)

The organization's mission is to continue the heritage of hunting worldwide by developing safe, responsible, and knowledgeable hunters. Since its inception, IHEA has endeavored to:

- *Serve as the primary resource for information on hunter education.*
- *Promote hunter education by providing opportunities for the exchange of ideas, knowledge, and experiences.*
- *Promote hunter education by fostering cooperative efforts among government agencies, organized groups, and industry.*
- *Uphold the image of hunting as a legitimate tool of wildlife management and as a recreational activity throughout North America.*
- *Promote programs which prevent hunting accidents.*
- *Cultivate honesty, self-discipline, self-reliance, responsible behavior, and good citizenship among hunters.*
- *Strive for constant improvement in hunter education programs.*
- *Fully involve volunteers and other associate members in all affairs of the International Hunter Education Association.*

WHY HUNTER EDUCATION?

The first mandated hunter education program began in New York in 1949 to reduce hunting accidents. As hunter education programs spread across the country, safety coordinators formed what is now the International Hunter Education Association to create a core curriculum, which is the basis for this course.

- Hunter education programs have always taught young hunters the practice of firearm and hunting safety. Today, hunter education programs are about more than safety. They have been expanded to produce knowledgeable, responsible, and involved hunters—hunters who understand the importance of complying with hunting laws and behaving ethically. These programs give beginners a good foundation, and they provide a refresher for veteran hunters.
- Ultimately, the mission of hunter education programs is to ensure the continuation of the hunting tradition.



Responsibility, Safety Skills, Knowledge, and Involvement

Hunter education strives to instill responsibility, improve skills and knowledge, and encourage the involvement of beginner and veteran hunters. Responsible, ethical behavior and personal involvement are both essential to the survival of hunting.

■ Responsibility

A knowledgeable and skillful student of hunting will never be a true hunter unless he or she also behaves responsibly. Responsible behavior includes courtesy, respect of others and of wildlife, and involvement. Responsible hunters do not poach or act carelessly. Responsible hunters obey hunting laws, hunt fairly, practice safety rules, and wait for a clean kill before shooting. How you behave and how other people see you will determine hunting's future.

■ Safety Skills

Hunting-related safety skills are gained through hands-on training and practice. It is most valuable to learn these skills from an experienced hunter.

■ Knowledge

Knowledge is learning and understanding the basics of safe gun handling and hunting. Before being trained in the skill of firearm shooting, you should know how the firearm operates and how to handle it safely.

■ Involvement

Part of the process of becoming a true, responsible sportsman is becoming involved in efforts to make hunting a respected sport. That includes teaching others, working with landowners, and cooperating with game wardens. It also includes joining conservation organizations, which will help preserve habitat and promote wildlife management.

HUNTER EDUCATION FUNDING SOURCES

- The U.S. Fish & Wildlife Service provides federal aid to state wildlife agencies to support a variety of hunting-related projects, including hunter education, land acquisition, and improvement of wildlife habitat. The Federal Aid in Wildlife Restoration funding was established in 1937 by the Pittman-Robertson Act.
- State wildlife agencies sponsor the hunter education programs that are found in each state or province.
- Non-governmental organizations (Ducks Unlimited, National Rifle Association, International Hunter Education Association, etc.) offer hunter education and firearm safety education materials and training.
- Many firearm and archery manufacturers provide training materials to teach how to use their products safely.
- Local hunting clubs, civic clubs, and businesses often provide the facilities and equipment for hunter education courses.

Pittman-Robertson Act



- The Federal Aid in Wildlife Restoration Act, popularly known as the Pittman-Robertson Act, was approved by Congress in 1937. The Act provides funding for the selection, restoration, and improvement of wildlife habitat, and for wildlife management research. The Act was amended in 1970 to include funding for hunter education programs and for the development and operation of public target ranges.
- Funds for the Act come from an 11 percent federal excise tax on sporting arms, ammunition, and archery equipment, and a 10 percent tax on handguns. One-half of the excise tax on handguns and archery equipment is used for hunter education and target ranges. These funds are collected from the manufacturers and are distributed each year to the states and territorial areas by the Department of the Interior.
- Each state's proportion of the federal funds is based on the area of the state and the number of licensed hunters in the state. The state covers the full amount of an approved project and then applies for reimbursement through federal aid for up to 75 percent of the project's expenses; the state is responsible for the other 25 percent of the project's cost.

Objectives

You should be able to...

- Define a firearm.
- Identify the basic parts of a rifle, shotgun, and handgun.
- Identify the basic components of rifle and shotgun ammunition.
- Explain how ammunition is fired from a firearm.
- Identify six types of firearm actions.
- Demonstrate proper loading and unloading of firearms with two different types of actions.
- Identify the location(s) of safeties on firearms and explain how they are used.
- Name five types of sights found on firearms.
- Describe how a rifle is different from other firearms.
- Identify and explain a rifle's caliber and a shotgun's gauge.
- Name the four common shotgun chokes and explain how they differ.
- Explain the difference between lead shot and steel shot.
- Correctly match ammunition with firearms.
- Explain the danger of mixing different gauges of shotshells.
- Explain why it is important to know your firearm's range.
- Demonstrate cleaning procedures for a firearm.
- Demonstrate how to make a firearm safe for storage.



The first step to becoming a responsible hunter is knowing your equipment and how to use it safely.

WHAT IS A FIREARM?

A firearm is a mechanical device that uses pressure from a burning powder to force a projectile through and out of a metal tube. To appreciate fully the importance of firearm safety, you first must understand how firearms work. This includes knowing the parts of the firearm, the types of ammunition, how ammunition is fired, and the ranges of the various firearms used for hunting.

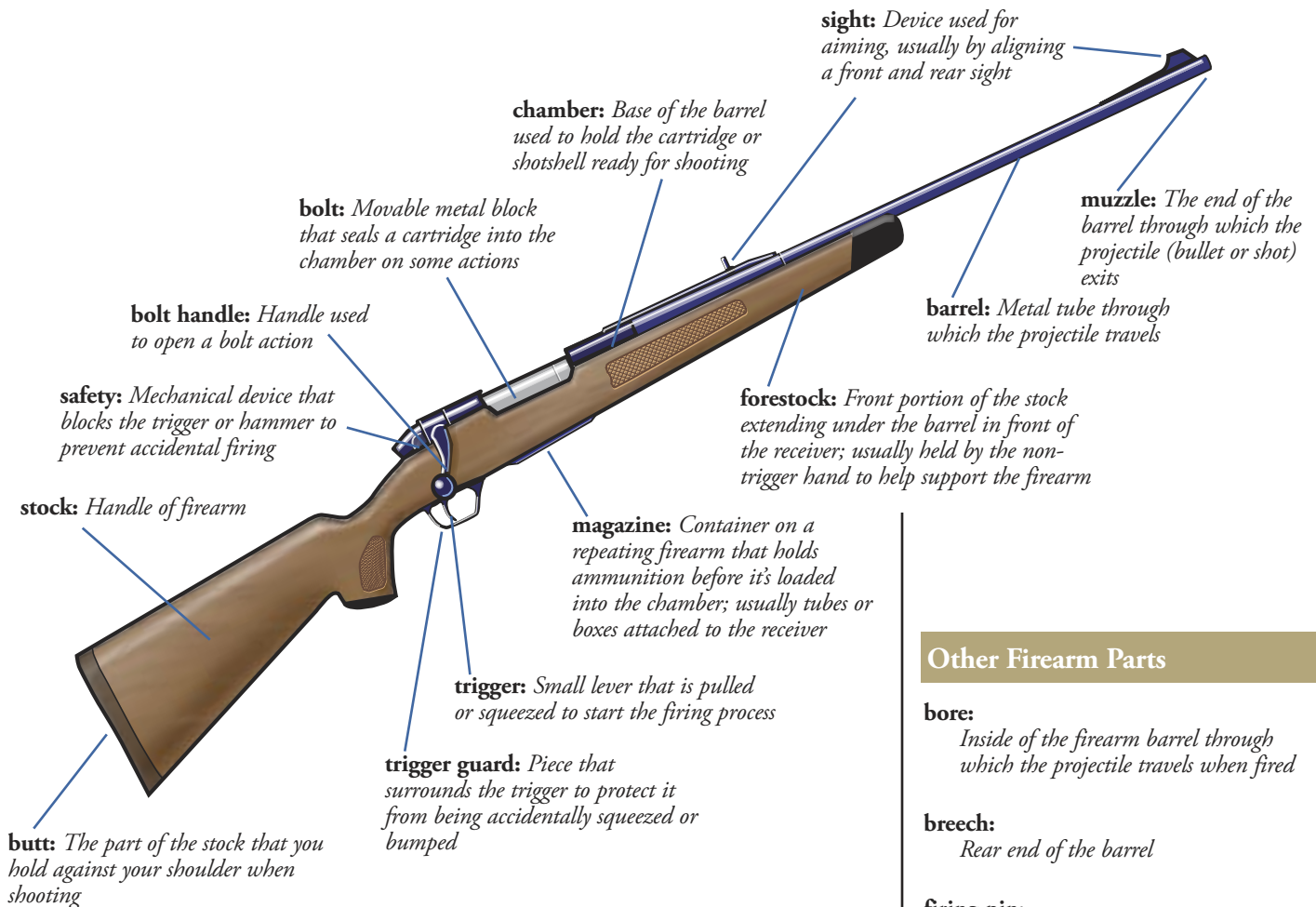
Basic Parts of a Firearm

Although firearms have changed a great deal since they were first invented, the terms used for their parts have changed very little. All modern firearms have three basic groups of parts:

- **Action:** The action is the heart of the firearm—the moving parts that load, fire, and eject the shells or cartridges. Several types of actions are used in modern firearms. Muzzleloaders have locks instead of actions.
- **Stock:** The stock serves as the handle of the firearm. It can be composed of one or two pieces and is usually made of wood or a synthetic material.
- **Barrel:** The barrel is the metal tube that the projectile travels through (bullets travel through the barrel of rifles and handguns; shot travels through the barrel of shotguns).

Parts of a Bolt-Action Rifle

Rifles, shotguns, and handguns have many similar parts. Shown here are the parts of a commonly used rifle—the bolt-action rifle.



Other Firearm Parts

bore:

Inside of the firearm barrel through which the projectile travels when fired

breech:

Rear end of the barrel

firing pin:

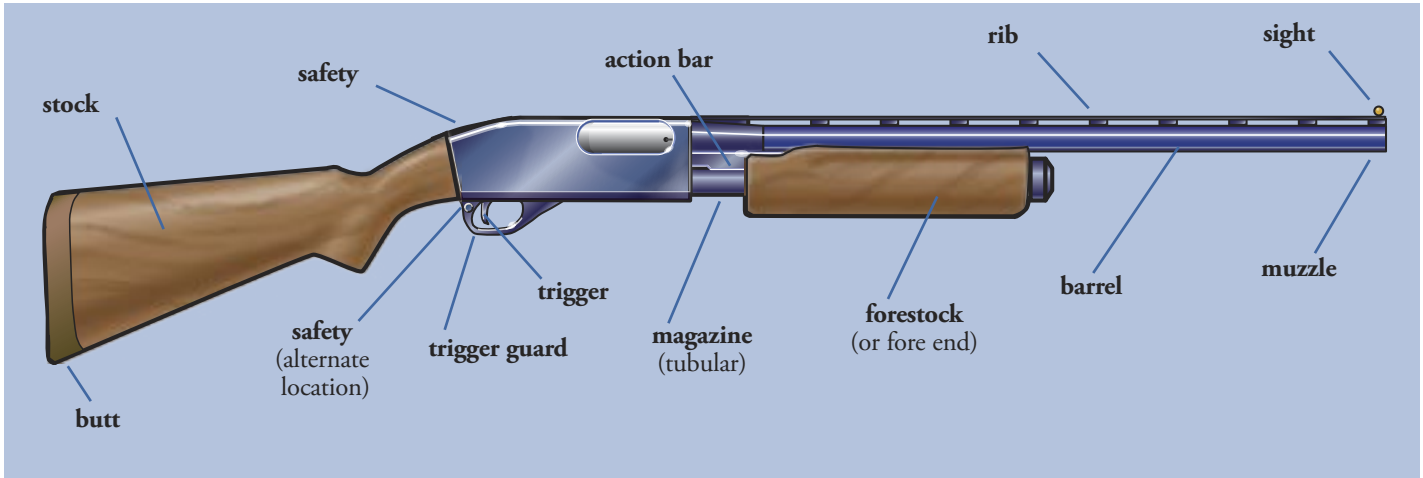
A pin that strikes the primer of the cartridge, causing ignition

receiver:

Metal housing for the working parts of the action

Parts of a Pump-Action Shotgun

Shotguns are another long-barreled firearm used by hunters. Below are the parts of a commonly used shotgun—the pump-action shotgun.



The Airgun

The airgun is often used by beginning hunters to learn shooting and safety skills. Modern airguns have designs, parts, and sights similar to sporting firearms.

Airguns can be just as dangerous as larger firearms. Youngsters should always be supervised when using airguns.

There are three types of airguns:

- **Pneumatic airguns** use a pump system that forces air into an enclosed chamber. The air is retained in the chamber by a valve that allows air to enter but not escape. When the trigger is released, the compressed air drives the pellet or BB out of the barrel.
- **CO₂-powered or gas-powered airguns** use compressed CO₂ contained in a cylinder. The cylinder attaches to a chamber inside the air rifle or pistol. When the trigger is squeezed, a valve releases a quantity of CO₂ that propels the pellet or BB out of the barrel.
- **Spring-piston airguns** use a spring that is compressed by a lever. When you squeeze the trigger, the spring is released and thrusts a plunger forward. The plunger pushes a compressed column of air through the barrel, driving out the pellet or BB.

Parts of a Handgun

Handguns (revolvers and pistols) are short-barreled firearms sometimes used for hunting. Below are the parts of a double-action revolver and a semi-automatic pistol.



WHAT IS AMMUNITION?

Modern ammunition varies depending on the type of firearm. Rifles and handguns use a **cartridge** containing a single projectile (bullet). Shotguns use a **shotshell** containing either a single slug or a large number of small projectiles (shot). However, the basic components of cartridges and shotshells are very similar.

Basic Components of Ammunition

The basic components of ammunition are the case, primer, powder, and projectile(s). Shotshells have an additional component called wad.

- **Case:** The container that holds all the other ammunition components together. It's usually made of brass, steel, copper, paper, or plastic.
- **Primer:** An explosive chemical compound that ignites the gunpowder when struck by a firing pin. Primer may be placed either in the rim of the case (rimfire) or in the center of the base of the case (centerfire).
- **Gunpowder:** A chemical mixture that burns very rapidly and converts to an expanding gas when ignited. Modern smokeless powder will burn slowly when ignited in the open (outside of the case). Black powder is less stable and can be explosive when ignited in the open.
- **Projectile:** The object(s) expelled from the barrel. A bullet is a lead projectile fired through a rifle or handgun barrel. A slug is a lead projectile fired through a shotgun barrel. Shot is a group of lead, steel, tungsten, or bismuth pellets fired through a shotgun.
- **Wad:** A seal made of paper or plastic separating the powder from the slug or shot in a shotshell. The wad prevents gas from escaping through the shot and holds the shot together as it passes through the barrel.

Rifle and Handgun Cartridges

- It's critical to select the correct cartridge for your rifle or handgun. Carefully compare the data stamp on the barrel of the firearm against the description on the ammunition box and the stamp on each cartridge.
- Bullets used in rifle and handgun cartridges come in various designs, sizes, and weights. The bullet is made of lead but sometimes has a copper jacket. Bullets used for hunting game may have soft or hollow points designed to expand (mushroom) upon impact. Bullets used for target shooting usually have solid points that make smaller holes.
 - Common types of rifle bullets are:
 - Pointed Soft Point: High velocity, accurate bullets with a flat travel path (trajectory); excellent mushrooming
 - Rounded Soft Point: Popular for low velocity calibers; recommended for tubular magazines
 - Protected Tip: Highly accurate with excellent expansion
 - Full Metal Jacket: Maximum penetration without mushrooming; these bullets are *illegal for big game hunting in most states*
 - Common types of handgun bullets are:
 - Roundnose Lead: Good penetration, little expansion
 - Full Metal Jacket: No expansion, high penetration
 - Semi-Wad Cutter: Balances penetration and expansion
 - Hollowpoint: Designed for high expansion on impact
 - Wad Cutter: Flat-ended, used for target shooting; creates clean hole in paper

cartridge:

Ammunition used in modern rifles and handguns; a case containing primer, gunpowder, and a bullet

shotshell:

Ammunition used in modern shotguns; a case containing primer, gunpowder, wad, and a slug or shot

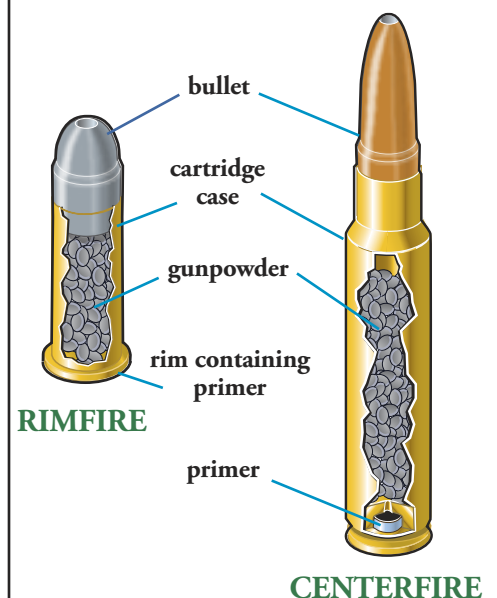
Centerfire and Rimfire Ammunition

- Centerfire ammunition is used for rifles, shotguns, and handguns. In this type of ammunition, the primer is located in the center of the casing base. Most centerfire ammunition is reloadable.
- Rimfire ammunition has the primer contained in the rim of the ammunition casing. Rimfire ammunition is limited to low pressure loads. Rimfire cartridges are not reloadable.

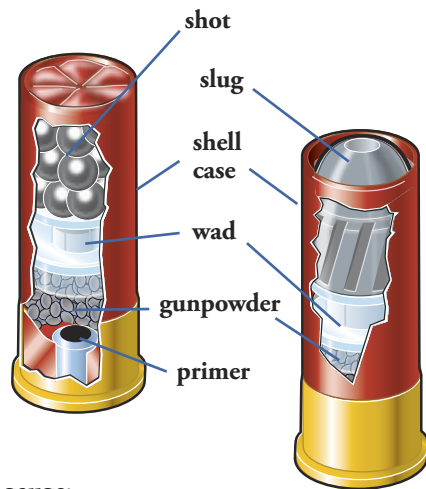
Safety TIP

In tubular magazines, the bullet tip of one cartridge rests directly on the primer of the cartridge immediately ahead. For this reason, use only rounded or blunt tips in tubular magazines.

Rifle and Handgun Ammunition



Shotgun Ammunition



gauge:

Term used to designate bore diameter of a shotgun; gauge is the number of lead balls with diameters equal to the diameter of the bore that, when combined, weigh one pound







Shotshells

- Shotgun shells (shotshells) use a slug or shot as the projectile(s).
 - A slug is a lead projectile used for hunting big game with a shotgun.
 - Shot are multiple pellets fired through a shotgun barrel. Shot size is adaptable to the game being hunted. This type of projectile is typically used to hunt game birds and small game animals.
- The shotshells must exactly match the **gauge** and shell length specified by the manufacturer. This information is usually found on the barrel of the shotgun. Shotguns may be chambered for 2¾ inch, 3 inch, or 3½ inch shells. This refers to the length of the shell *after* it has been fired. Read more about correctly matching ammunition to your firearm on page 19.
- You also must choose the correct type and size of shot for the shotshell. In general, as the size of your target decreases, you should also decrease the diameter of the shot you use.
 - As pellet diameter decreases, more shot can be placed in a standard shotshell.
 - The smaller the shot “number,” the larger the pellet diameter.
 - Shotshell marked as “magnum” means the shell has more shot or more gunpowder than a regular shell. Magnum and regular shotshells are interchangeable *if the correct gauge and shell length are used*.









Shot Sizes

BUCK SHOT










Shot size is adaptable to the game being hunted. As pellet diameter decreases, more shot can be placed in a standard shotshell load. The smaller the shot number, the larger the shot size.

	Number	Diam. in inches
	4	.24
	3	.25
	1	.30
	0	.32
	00	.33
	000	.36

STEEL SHOT

	Number	Diam. in inches	Approx. Pellets in 1 oz.
	6	.11	317
	4	.13	192
	3	.14	154
	2	.15	125
	1	.16	103
	BB	.18	72
	BBB	.19	61
	T	.20	53

LEAD SHOT

	Number	Diam. in inches	Approx. Pellets in 1 oz.
	12	.05	2385
	9	.08	585
	8	.09	410
	7½	.09½	350
	6	.11	225
	5	.12	170
	4	.13	135
	2	.15	90
	BB	.18	50

Non-Toxic Shot

Non-toxic shot is required throughout the U.S. for waterfowl hunting. Studies showed that many waterfowl died each year because of lead poisoning. Lead pellets from traditional shotshells were picked up and digested by waterfowl. The toxic effect spread to other birds, such as the bald eagle, who consumed the poisoned waterfowl. To reduce this problem, conservationists worked with shotshell manufacturers to produce effective alternatives to lead shot—steel, tungsten, or bismuth shot.

- Steel shot pellets react differently than lead when shot. Steel weighs about two-thirds as much as lead, but is much harder. Steel does not deform and is not as unstable in flight. It will produce a tighter pattern than lead shot. If using steel shot for hunting, choose a steel shot size one to two sizes larger than the lead shot you would select. See page 18 for more information about shot patterns and steel shot.

HOW A FIREARM WORKS

The same physical process is used to fire shotshells from shotguns or cartridges from rifles or handguns. Pulling the trigger causes the firing pin to strike and explode the primer in the base of the cartridge or shotshell. The spark from the primer ignites the gunpowder, which burns rapidly and converts to a gas. The gas rapidly expands and drives the projectile(s) through the barrel with great force.

■ How the rifle and handgun fire:

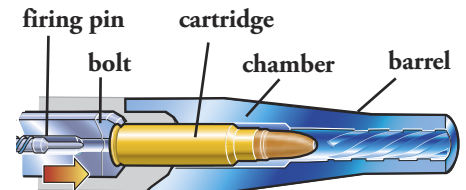
1. A cartridge is inserted into the chamber.
2. The action is closed, and the firing pin is pushed back and held back under spring tension.
3. The trigger is pulled, releasing the firing pin, which moves forward with great force. The firing pin strikes the primer, causing it to explode.
4. The spark from the primer ignites the gunpowder. Gas converted from the burning powder rapidly expands in the cartridge.
5. The expanding gas forces the bullet out of the cartridge and down the barrel with great speed.
6. The rifling in the barrel (see page 16) causes the bullet to spin as the bullet travels out of the barrel. The bullet's speed and escaping gases produce a "bang."

■ How the shotgun fires:

1. A shotshell is inserted into the chamber.
2. The action is closed, and the firing pin is pushed back and held back under spring tension.
3. The trigger is pulled, causing the firing pin to strike the primer producing a spark.
4. The spark from the primer ignites the gunpowder. Gas converted from the burning powder expands in the shell.
5. The gas pushes the wad against the shot; the wad and shot are forced out of the plastic body of the shell.
6. The wad and shot leave the barrel. The escaping gases produce a "bang."
7. The shot and wad separate. The shot cluster spreads and forms a pattern.

How Ammunition Is Fired

The firing sequence for handguns and shotguns is very similar to this sequence shown for a bolt-action rifle.



- The bolt moves forward, compressing the firing pin spring and inserting a cartridge into the chamber.



- The firing pin is held back under spring tension.



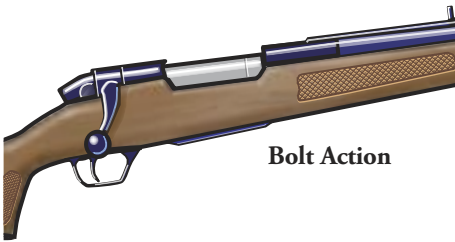
- When the trigger is pulled, the firing pin moves forward, crushing and igniting the primer in the cartridge base.



- The primer ignites the gunpowder, generating gas pressure, which forces the bullet forward and out of the barrel.

Common Actions on Rifles

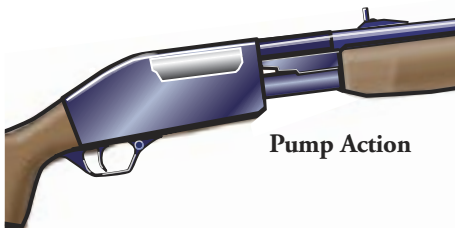
Singleshot rifles are usually break or bolt actions. Repeating rifles include the bolt-action, lever-action, pump-action, and semi-automatic types. Operating the lever, bolt, or forestock ejects the empty cartridge case, chambers a new round of ammunition, and cocks the gun.



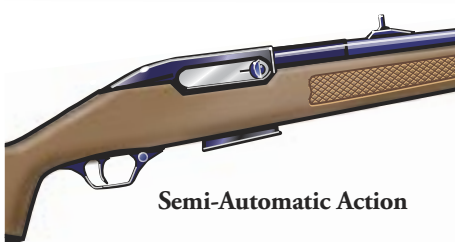
Bolt Action



Lever Action



Pump Action



Semi-Automatic Action



Break (Hinge) Action

COMMON FEATURES OF FIREARMS

All types of firearms have actions and sights, and they may have safeties or magazines. Features unique to rifles or shotguns are discussed in the following sections.

Firearm Actions

Firearms can be classified by their action type. The action of a firearm is made up of parts that load, unload, fire, and eject the shotshell or cartridge. Actions are either singleshot or repeating styles. Singleshot firearms must be reloaded each time the firearm is fired. Repeating firearms have extra cartridges or shotshells ready in a magazine, cylinder, or extra barrel.

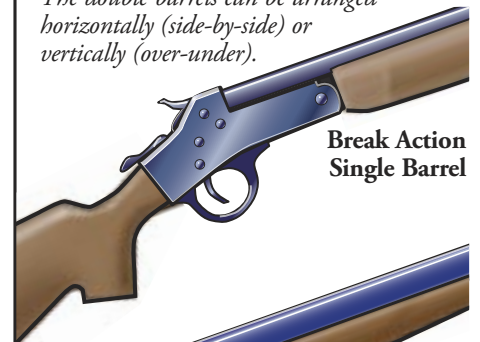
- **Bolt Action:** A bolt-action firearm operates like opening and closing a door bolt. The bolt solidly locks into the breech, making it accurate and dependable.
 - To open the action, lift the handle up and pull it to the rear.
 - If the firearm is loaded, the cartridge or shotshell will be ejected as you pull the bolt to the rear. To make sure it's unloaded, visually check *both* the open action *and* the magazine for extra cartridges or shotshells.
 - You can store a bolt-action firearm safely by storing the bolt separately from the firearm.
- **Lever Action:** The lever-action firearm has a large metal lever located behind the trigger. This handle usually forms the trigger guard as well.
 - To open the action, push the lever downward and forward, which extracts the cartridge case from the chamber and ejects it. If a magazine holds extra cartridges, another is immediately ready to be loaded into the chamber.
 - It's often difficult to tell if a lever-action firearm is loaded. To unload, push the lever downward and forward repeatedly until no more cartridges are ejected. To make sure it's unloaded, visually check *both* the chamber *and* the magazine for additional cartridges.
 - Most models also have an exposed hammer, which can be dangerous.
 - *Always use extra caution to keep your hands away from the trigger while working the lever action.*
- **Pump Action:** The pump-action firearm is fast and smooth. It allows the shooter to re-cock the firearm without taking his or her eye off the target. The pump action is also referred to as "slide action" or "trombone action."
 - To open the action, slide the forestock to the rear, which extracts the cartridge from the chamber and ejects it. Sliding the forestock toward the muzzle closes the action and readies another cartridge for loading. A pump-action firearm will open only after it's fired or if a release lever is pressed and the forestock is pulled to the rear.
 - To make sure it's unloaded, you must visually check *both* the chamber *and* the magazine for cartridges.
- **Semi-Automatic (or Autoloading) Action:** As each shot is manually fired, the case of the cartridge or shotshell is automatically ejected and the chamber is automatically reloaded.
 - To open the action, you must pull back the bolt's operating handle (on a rifle or shotgun) or the slide (on a pistol). Most semi-automatics, when the bolt or slide is pulled back, will lock in the open position if the magazine is empty. If it does not lock open, it means that a cartridge from the magazine has gone into the chamber, making the firearm ready to fire. A few semi-automatics do not lock open and must be held open to check the chamber.

- To unload, *first remove the magazine* and lock the action open. Then make sure it's unloaded—visually check the chamber for an additional cartridge or shell.
- When closing the action for loading, pull back to unlock the bolt or slide and then let go, allowing it to travel forward on its own. Do not guide it forward with your hand, or it may not seat properly.
- On a semi-automatic, the trigger must be pulled each time a shot is fired. This makes the semi-automatic different from the fully-automatic firearm, which fires continuously as long as the trigger is held down. *The fully-automatic firearm may not be used for hunting or sport shooting.*

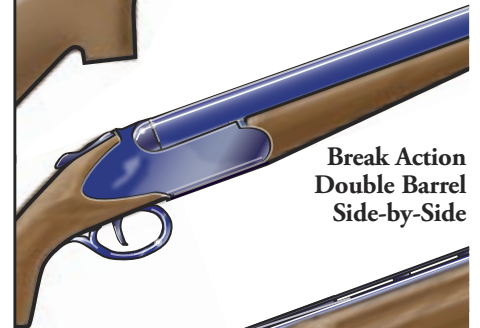
- **Break (or Hinge) Action:** The break-action firearm operates on the same principle as a door hinge. Simple to load and unload, a hinge-action is often chosen as a hunter's first firearm.
 - To open the action, point the barrel(s) at the ground. A release is pressed, and the stock drops downward. This allows the cartridges or shotshells to eject or to be removed manually if the firearm is loaded.
 - Hinge-action firearms have a separate barrel for each shot rather than a magazine. Most models have one or two barrels, but some have up to four.
 - Some models also have an exposed hammer(s), which can be dangerous.
- **Revolving Action:** The revolving action takes its name from a revolving cylinder containing a number of cartridge chambers. One chamber at a time lines up with the barrel as the firearm is fired. Revolver cylinders may rotate either clockwise or counter-clockwise, depending on the manufacturer. This type of action is usually found on handguns but may be found on some older rifles. Revolving actions are referred to as either "single-action" or "double-action."
- **Single-action:** Will fire only after the hammer has been manually cocked.
- **Double-action:** Pulling the trigger both cocks and releases the hammer. A double-action revolver typically can also be hammer-cocked like a single-action.

Common Actions on Shotguns

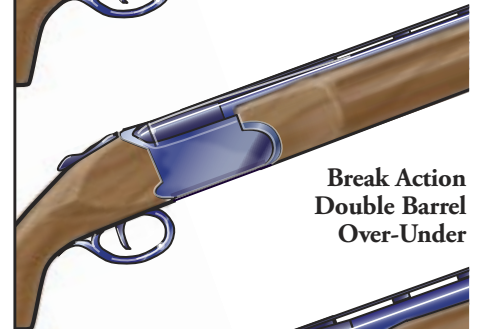
Shotguns use many of the same actions as rifles—the bolt action, pump action, and semi-automatic. They also use a break action as either a single barrel or double barrels. The double barrels can be arranged horizontally (side-by-side) or vertically (over-under).



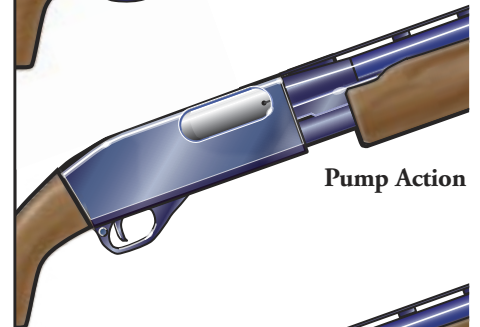
Break Action
Single Barrel



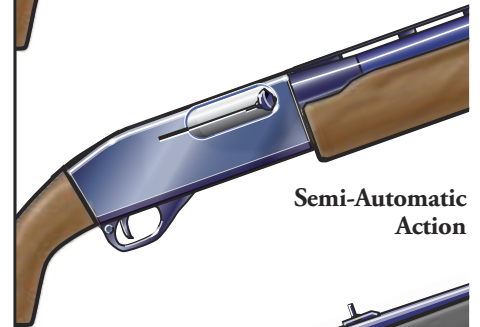
Break Action
Double Barrel
Side-by-Side



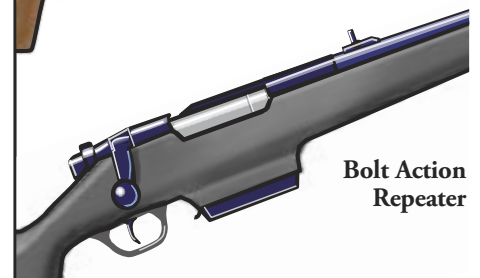
Break Action
Double Barrel
Over-Under



Pump Action



Semi-Automatic
Action



Bolt Action
Repeater

Typical Handgun Actions



Break Action
Pistol
(Singleshot)



Double-Action
(Trigger-Cocking)
Revolver



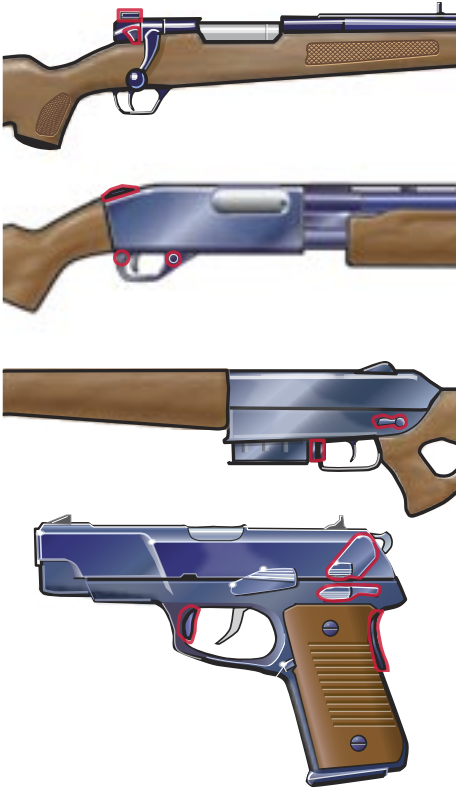
Semi-Automatic
Pistol



Single-Action
(Hammer-Cocking)
Revolver

Typical Locations of Safeties

The red outlines indicate where safeties are typically located on rifles, shotguns, and handguns.



Safety TIP

You should never replace safe firearm handling by trusting the safety on a firearm. A safety is a mechanical device that could fail. Don't release the safety until just before you shoot.

Knowing where the safety is and how it works is not always as simple as it might seem. There are many types of safeties. Sometimes persons alter or modify their guns to disable the safety. This is very dangerous, especially if the gun gets into the hands of an inexperienced shooter. Be sure you know how the safety works on your own gun or any others you handle. Never alter or modify your firearm yourself. Have an experienced gunsmith look at your gun if the safety does not work or if anything else is wrong with it.

Safety Mechanisms

A safety is a device that blocks the action to prevent the firearm from shooting until the safety is released or pushed to the “off” position. The safety is intended to prevent the firearm from being fired accidentally. However, safeties should never be relied on totally to protect against accidental shooting. Safeties are mechanical devices and subject to mechanical failure from wear and other factors, and can fail when least expected. Also, safeties can unknowingly be bumped from the safe position as your firearm is being handled or as it catches on clothing or tree branches.

All safeties are located around the receiver of the firearm and are usually easy to spot. Common types of safeties are:

■ Cross-Bolt Safety

- Common on pump and semi-automatic firearms
- A simple push-button action that blocks the trigger or hammer
- Usually located at the trigger guard or ahead of the hammer

■ Pivot Safety

- Common on handguns and bolt-action rifles
- A pivoting lever or tab that blocks the trigger or firing pin
- Located on the frame (blocks trigger) or on the bolt or slide (blocks firing pin)

■ Slide or Tang Safety

- Common on some rifles and hinge-action shotguns
- A sliding bar or button that blocks the firing action
- Located on the tang (a metal strip behind the receiver) of hinge-action firearms or on the side of the receiver on some rifles

■ Half-Cock or Hammer Safety

- Common on firearms with exposed hammers
- Positions the trigger at half-cock, away from the firing pin
- Engaged by placing the trigger at half-cock; some firearms automatically rebound to the half-cock position after the trigger is released
- While not a true safety, it is sometimes described as a mechanical safety device by firearm manufacturers

Magazines

In repeating firearms, the magazine is the place that stores the ammunition that has not been fired. When you work the action, a cartridge is picked up from the magazine and placed in the chamber ready to be fired.

- Magazines are designed with a spring and follower that push against the cartridges to move them into the action. When checking a magazine to make sure it's empty, you must be able to either see or feel the follower; if you cannot see or feel the follower, there may be a cartridge jammed in the magazine, which can be dangerous. Tubular magazines require close attention to make sure a cartridge is not jammed in the magazine.

- Magazines may be detachable or fixed.

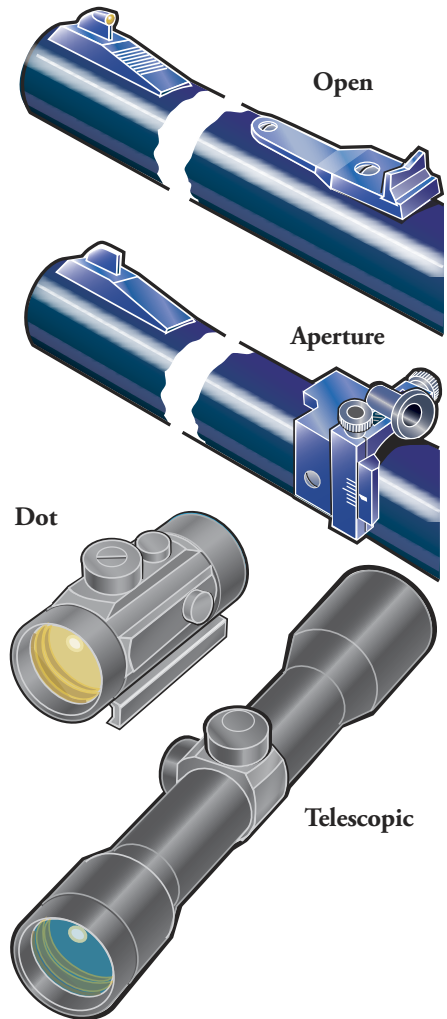
- Detachable magazines allow you to remove extra ammunition from the firearm simply by removing the magazine.
- Fixed magazines require the ammunition to be removed manually from the gun itself. These include tubular magazines, hinged floor plate magazines, and revolving magazines.

Sights

A sight is a device used to line up the muzzle with the shooter's eye so that he or she can hit the target. Sights are more critical on a firearm that fires a single projectile (rifle and handgun) than on a firearm that shoots a pattern of shot (shotgun). Shotguns usually have a simple pointing bead. Rifles typically have an open, an aperture (peep), or a telescopic sight. Most handguns have an open sight, although some specialized handguns have a dot or a telescopic sight. Read more about using sights on pages 24-26.

- **Bead Sight:** Simple round bead set into the top of the barrel near the muzzle of a shotgun. Some shotguns have a second, smaller bead about halfway back on the barrel. The shooter uses the shotgun to “point” and follow a moving object as you would point with your finger. The bead is used only for a reference as the shotgun is pointed and moved to follow flying or running targets.
- **Open Sight:** Combination of a bead or post front sight and a notched rear sight. These sights are simple and inexpensive. Open sights allow quick sighting. To aim, you center the top of the bead or post within the notch of the rear sight and line up on the target. Open sights can be fixed or adjustable.
- **Aperture (Peep) Sight:** Combination of a bead or post front sight and a round hole set on the rifle's receiver close to the shooter's eye. To aim, you center the target in the rear peep or aperture sight and then bring the front sight into the center of the hole. An aperture sight is more accurate and adjusted more easily than an open sight.
- **Telescopic Sight (Scope):** Small telescope mounted on your firearm. A scope gathers light, brightening the image and magnifying the target, and does away with aligning rear and front sights. The aiming device inside the scope is called the “reticle.” To aim, you simply look through the scope and line up the crosshairs, post or dot with your target. Telescopic sights are the most accurate, which makes them popular for hunting.
- **Dot Sight:** Small device mounted on your firearm. A dot sight uses electronics or optical fibers to project a glowing dot or other mark on a lens in front of the shooter's eye. Some dot sights also magnify like telescopic sights.

Types of Rifle Sights



Remember...

Never use the scope on your telescopic sight as a set of binoculars!

The Damascus Barrel

Damascus or “Damascus twist” barrels are older shotgun barrels that were typically made before 1900. Iron and steel ribbons were twisted and welded together. Damascus barrels are weaker than modern barrels and are not designed for the high gas pressures created by modern ammunition. Damascus barrels have a distinctive, irregular pattern of short, streak-like marks around the barrel. If you have a Damascus barrel gun, don’t shoot it. The barrel may burst slightly ahead of the chamber, crippling the shooter’s hand or forearm. If you have an older firearm and are not sure if it has a Damascus barrel, go to a qualified gunsmith to identify its make before shooting it.

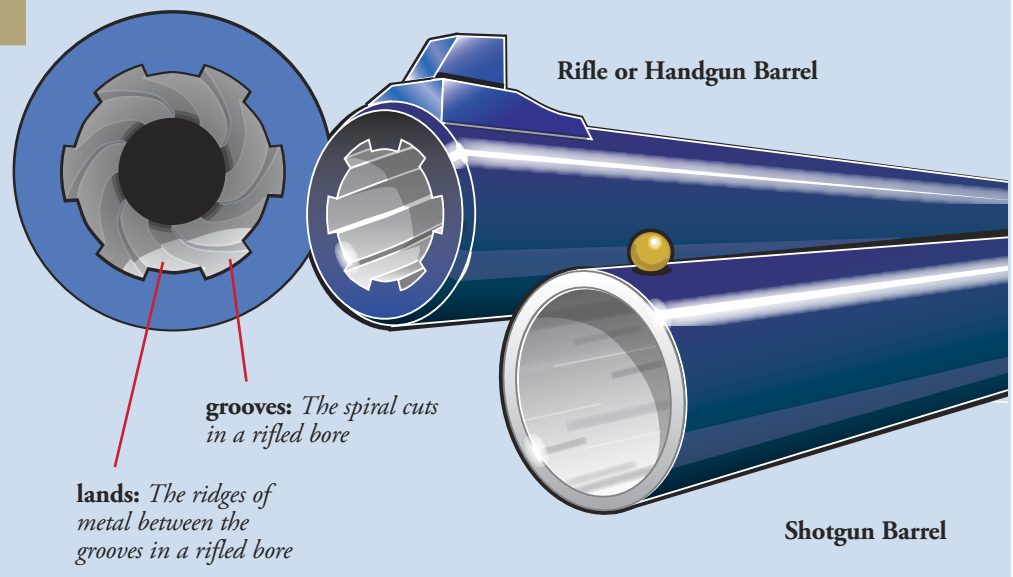
Rifle, Handgun, and Shotgun Bores

The bore of a rifle or handgun is grooved, which puts a spiral spin on the bullet for greater accuracy. The bore of the shotgun barrel is smooth because rifling would spread the shot pattern too soon.

DIFFERENCES BETWEEN RIFLES, SHOTGUNS, AND HANDGUNS

The main differences between rifles, shotguns, and handguns are their barrels and the type of ammunition used.

- The rifle barrel is long and has thick walls with spiraling grooves cut into the bore. The grooved pattern is called rifling.
- The shotgun barrel is long and made of fairly thin steel that is very smooth on the inside to allow the shot and wad to glide down the barrel without friction. It’s thinner than a rifle barrel since it does not have to withstand the same pressure.
- The handgun barrel is much shorter than a rifle or shotgun barrel because it’s designed to be shot while being held with one or two hands, rather than being placed against the shooter’s shoulder. The bores of most handgun barrels also have a grooved pattern similar to rifles.



Rifling in the Rifle or Handgun Bore

A bullet fired from a rifle or handgun has a spiral spin that keeps it point-first in flight, increasing accuracy and distance. This is achieved by the rifling inside the barrel, from which the rifle got its name. The barrel is thick and has spiraling **grooves** cut or pressed into the bore. The ridges of metal between the grooves are called **lands**. Together, the grooves and lands make up the “rifling.”

Remember...

Reloaded shells may have wrong information or have been improperly reloaded. It’s important to clearly mark reloaded shells. Use only shells or cartridges that you have reloaded yourself or that have been reloaded by a person whom you know is competent.

A Rifle's or Handgun's Caliber

Caliber is used to describe the size of a rifle or handgun bore and the size of cartridges designed for different bores.

- Caliber is usually measured as the diameter of the bore from land to opposite land and is expressed in hundredths of an inch, thousandths of an inch, or millimeters. However, there is no standard set for designating caliber. In some cases, the caliber is given as the diameter of the bullet, which is the distance between the grooves. For example, a .270-caliber rifle bore measures 270/1000ths of an inch in diameter between the lands and has a larger bore diameter than a .243-caliber rifle.
- Caliber designations sometimes have a second number that has nothing to do with the diameter. For example, the popular .30-30 is a .30-caliber, but the second number is a holdover from the days when the cartridge took 30 grains of powder. The "06" in .30-06 refers to the year (1906) it became the official ammunition of the U.S. military.
- Every rifle or handgun is designed for a specific cartridge. The ammunition must match the data stamp on the firearm. For example, there are several .30-caliber firearms that use the same bullet size, but are designed for different cartridges (the .30-30, .30-06, .308, and the .300 Savage). If you cannot find the caliber stamped on the firearm, take it to a qualified gunsmith.

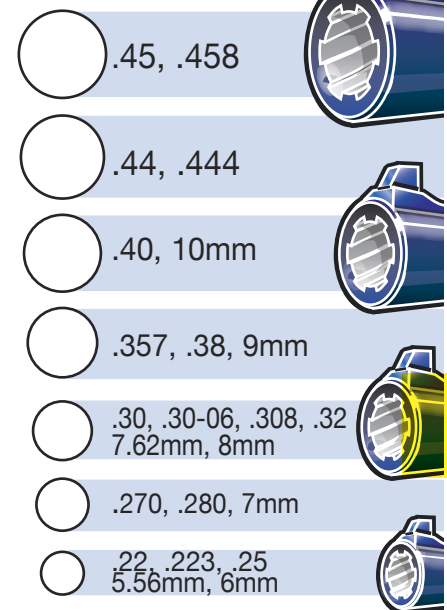
A Shotgun's Gauge

Shotguns are classified by gauge, which is a measure related to the diameter of the smooth shotgun bore and the size of the shotshell designed for that bore.

- Common shotgun gauges are 10-gauge, 12-gauge, 16-gauge, 20-gauge, and 28-gauge. The smaller the gauge number, the larger the shotgun bore. Gauge is determined by the number of lead balls of size equal to the exact diameter of the bore that it takes to weigh one pound. For example, it would take 12 lead balls with the same diameter as a 12-gauge shotgun bore to weigh one pound. Today, however, gauge can be measured much the same way as caliber by measuring the inside bore diameter.
- The .410 caliber shotgun is the only exception to the gauge designation for shotguns. It has an actual bore diameter of 410/1000ths of an inch, which is approximately equivalent to a 67½ gauge.
- Each gauge of shotgun shoots only shells of the same gauge. For example, 12-gauge shells are used only in 12-gauge guns.
- The gauge of a shotgun is usually marked on the rear of the barrel, and the gauge of a shell is marked on the shell as well as on the factory box.

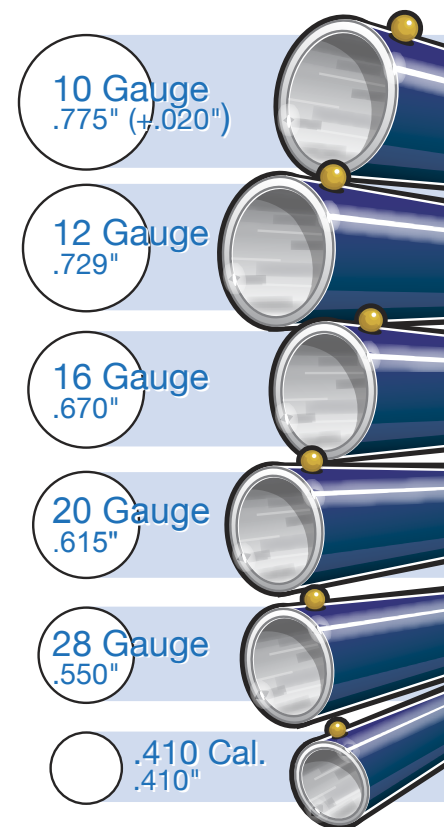
Rifle and Handgun Calibers

Circles show bore sizes of common cartridges. Having the same bore size does not mean different cartridges are interchangeable.



added
.30-06

Shotgun Gauge Sizes



Remember...

The choke of a shotgun determines shot spread only. It has no bearing on shot speed (velocity) or distance (range).

choke:

The degree of narrowing at the muzzle end of the shotgun barrel

shot pattern:

The spread of shot pellets after they hit a non-moving target

Steel Shot

Steel shot is slightly lighter than lead shot of the same size—reducing its velocity and distance (range). Also, steel shot is harder than lead, so the individual pellets stay round, keeping the pattern tighter.

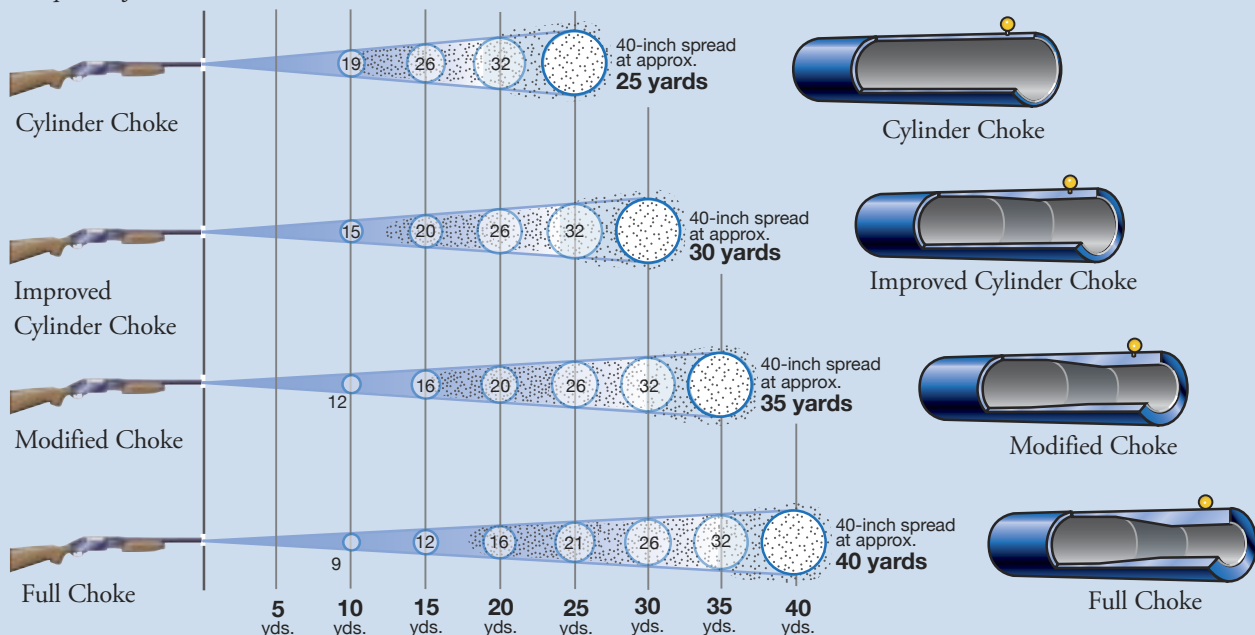
Some hunters use steel shot one or two sizes larger to make up the difference in weight from lead shot. Others use the same size steel shot or even smaller steel shot to get more shot into their patterns. You should pattern your shotgun with various loads of steel shot before hunting waterfowl with it.

Effective pattern density is the key. Maximum pellet counts spread evenly across a 30-inch circle are best. Full chokes generally produce poor patterns with steel shot.

Pattern Spread at Various Distances

Pattern spread of lead shot is shown below in inches.

Bore constriction is exaggerated for clarity.



Shotgun Choke and Shot Pattern

When a shotshell is fired from a shotgun, the pellets leave the barrel and begin to spread or scatter. The farther the pellets travel, the greater the spread of shot. Shotgun barrels have a **choke** to control the spread or **shot pattern**. Read more about how to pattern a shotgun on page 29.

- The choke of a shotgun acts like the nozzle of a garden hose. As the nozzle is tightened, water shoots out in a long, narrow stream, similar to the full choke on a shotgun. As the nozzle is opened, similar to the cylinder choke on a shotgun, water shoots out in a wide spray.
- Your distance from the target determines the choke you need. The choke does not alter the shotgun's power—it just controls how tight or spread out the shot pattern will be at a specific distance.
- The spread effect of the most common chokes is illustrated below. The choke controls how much shot will hit in a certain area at different ranges.
 - **Cylinder** choke is an unconstricted barrel. The shot pattern spreads quickly.
 - **Improved** Cylinder has a slight constriction. It allows the shot pattern to spread fairly quickly. This is a good choice for quail, rabbits, and other upland game.
 - **Modified** choke has moderate constriction. The shot stays together longer, making the pattern more dense and useful at longer ranges. This choke is often used for dove hunting and is the preferred choke when using steel shot to hunt for ducks or geese. There is also an Improved Modified choke that is slightly tighter than Modified.
 - **Full** choke has tight constriction. The shot holds together even longer, so it's good for squirrels, turkey, and other game shot at 35- to 40-yard ranges. Turkey hunters sometimes use Extra Full or Turkey choke for even denser patterns at long range.

MATCH FIREARMS AND AMMUNITION...CORRECTLY!

With so many kinds of firearms and types of ammunition, it's not always easy to match the proper ammunition to your firearm correctly—but getting it right is critical. If you match the wrong ammunition to your gun, you can cause an explosion, injuring or possibly killing yourself and any bystanders.

- To correctly match the proper ammunition to your rifle, shotgun, or handgun:
 - Read the specific caliber or gauge designations on the side of the barrel. Match that designation *exactly*. For example, if it says “.270 Winchester,” you cannot use “.270 Weatherby.” Shotgun barrels will give the gauge and the length of the chamber (for example, “12-gauge for 2¾ inch shells” or “20-gauge magnum for 3 inch shells”).
 - Carefully read the information on the lid of the ammunition box. With shotgun ammunition, always check both the gauge and the shell length, and whether it's a magnum **load** to ensure it matches the data on the barrel.
 - The final step is to match the information on the barrel to the information on the box *before you shoot*. If in doubt, ask a more experienced shooter or a qualified gunsmith. Some store clerks, although they sell ammunition, may not know the differences in sizes or the type of firearm you shoot.
- Safety practices that will help you avoid using the wrong ammunition are:
 - Purchase only the correct ammunition for your firearm. Buy the exact caliber or gauge and length of ammunition for which your rifle, handgun, or shotgun was designed. For example, shotshell must be the correct length for the shotgun. The data stamp on the barrel of the shotgun will identify which length of shells can be used.
 - Carry only the correct ammunition for the firearm you're using. Never mix ammunition such as carrying a caliber or gauge your companion uses. A common mistake involves putting a 20-gauge shotshell into a 12-gauge shotgun. The smaller gauge shell will slide through the 12-gauge chamber and partly down the barrel, causing an obstruction. The shooter, especially when excited by the presence of game, might insert a 12-gauge shotgun shell behind the 20-gauge.

WARNING!

Smaller shotshells (such as 20-gauge shells), if mistakenly fed into a 12-gauge gun, will slip past the chamber and lodge in the barrel, causing serious personal injury or gun damage if a 12-gauge shell is fired in the gun. Some rifle and handgun ammunition also may fit into the wrong gun, creating a dangerous situation. The caliber or gauge stamped on the end of the shell must match that stamped on the gun barrel. Some are not stamped. Be sure the right ammunition is used in your gun.

20-gauge
shotshell
lodged in a
12-gauge barrel

Safety TIP

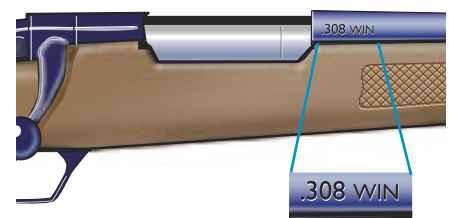
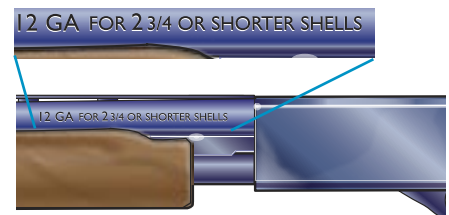
Hang fires happen when the firing pin has struck the primer and there is a delay before it fires. This can occur for several reasons such as a faulty firing pin or spring, a defective primer, or other cartridge-related problems. A misfire is when the primer fails to ignite the powder.

Always treat a “misfire” or a “hang fire” as if the firearm is going to discharge at any second. Leave the action closed and retain your shooting position. Most importantly, maintain muzzle control in a safe direction at all times. Failure to follow these safe handling practices could result in a tragedy.

load:

The amount of gunpowder in the cartridge or shotshell together with the weight of the bullet or shot charge

Shotgun barrels should be marked with the gauge and the length of the chamber on the rear of the barrel.



The data stamp of a rifle is usually stamped toward the rear of the barrel.

History of Firearms

The Chinese are believed to be the first to use gunpowder, now called “black powder.” The first firearms were tubes closed at one end, usually made of brass or cast iron. Early firearms were loaded by pouring black powder and shoving a projectile into the tube from the muzzle end, and then igniting the powder using a lighted wick or match. The powder burned, creating pressure that launched metal objects or arrows. These firearms are called “muzzleloaders” due to their loading process.

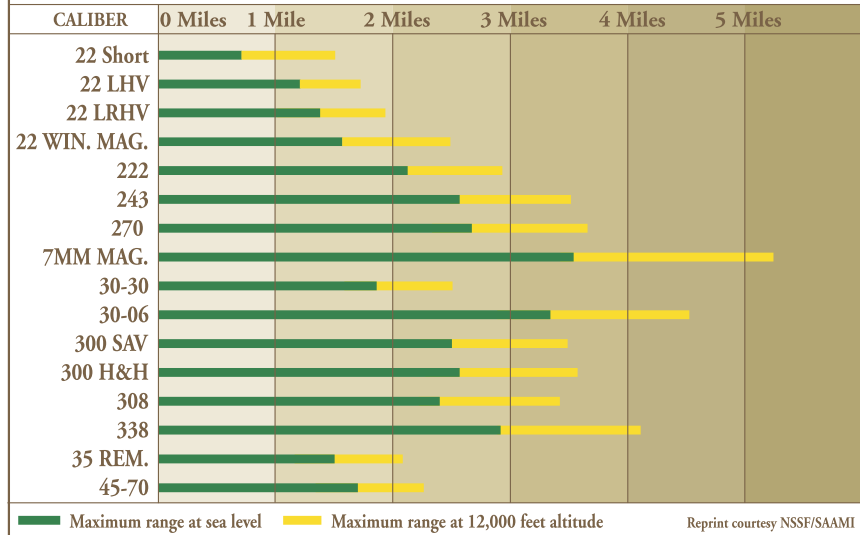
Advances in ignition systems were the major changes that brought about modern firearms:

- Matchlock ignition was developed in the early 1400s. When the trigger is pulled, a lighted wick is lowered into a priming pan located next to a vent hole drilled into the closed end of the barrel. When the priming powder ignites, it lights the main charge.
- Wheel lock ignition replaced the wick of the matchlock in the 1500s. When the trigger is pulled, a coiled spring forces the rough-edged steel wheel to spin against a piece of iron pyrite, creating sparks to ignite the powder in the priming pan.
- Flintlock ignition appeared in the late 1600s. When the trigger is pulled, the hammer holding a piece of flint falls against a steel cover (the frizzen) sitting over the priming pan. The hammer knocks the cover out of the way, and the collision of flint and steel causes sparks that ignite the powder in the priming pan.
- The percussion lock (also called “caplock”) replaced the flintlock in the early 1800s. Early percussion locks used priming compounds inside a metallic foil cap placed over the vent hole. When the hammer strikes the cap, the resulting spark ignites the main charge.
- The next advance, in 1835, was to arrange a series of percussion locks and barrels on a rotating wheel (cylinder) to allow a rapid succession of shots (Patterson revolver). With a single hammer and trigger, multiple shots can be fired without reloading—a repeating firearm. The percussion cap revolvers are the forerunners of modern revolvers.
- The percussion cap also paved the way to the self-contained ammunition we have today—cartridges and shotshells. In the mid-1800s, gunpowder, the projectile, and the primer were put together into a single housing that could be loaded quickly.
- Actions were developed to allow shooters to load cartridges and shotshells at the rear, rather than the muzzle, end of the barrel.

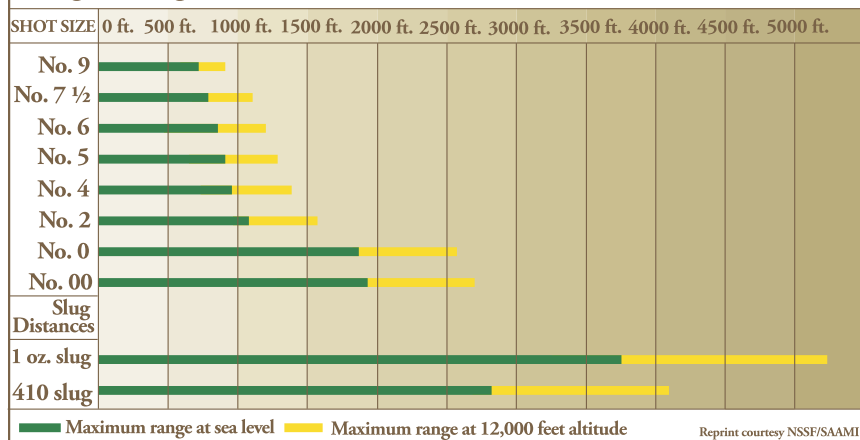
KNOW YOUR FIREARM’S RANGE

Knowing your firearm’s range is critical to being a safe and responsible hunter. The range tells you at what distances your firearm’s projectile could cause injury or damage to persons, animals, or objects. When hunting, knowing the range also lets you immediately assess when a shot will give a clean kill. Learning to estimate distances and knowing your firearm’s range are important parts of hunting.

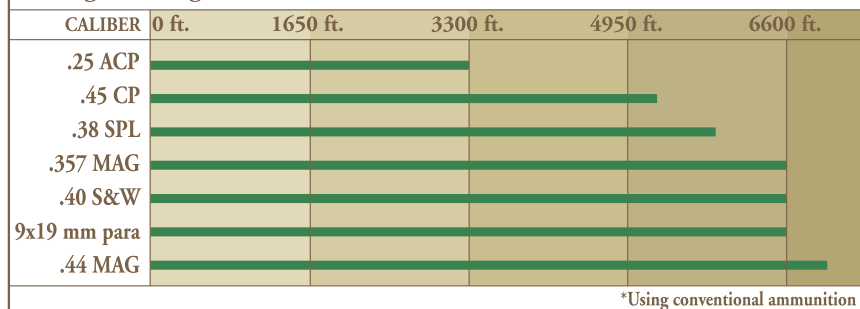
Rifle Ranges



Shotgun Ranges



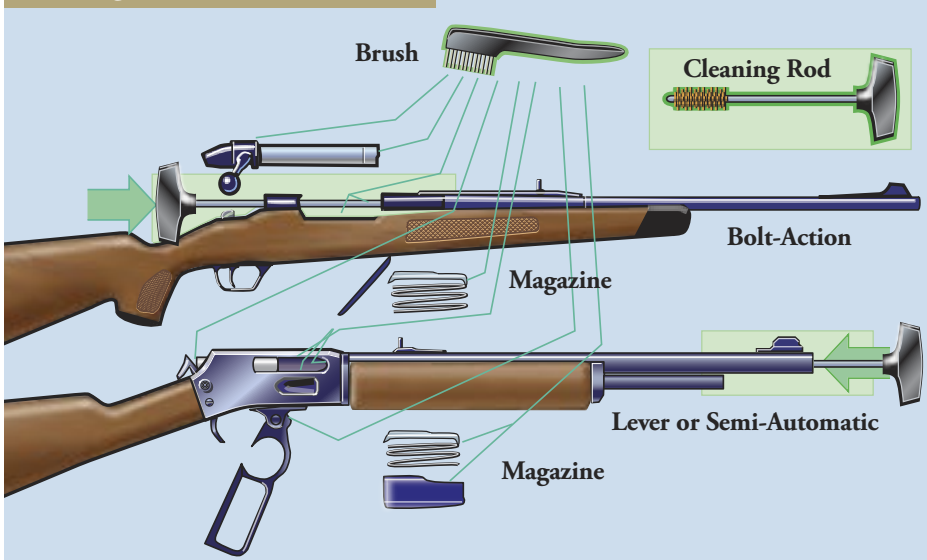
Handgun Ranges*



CLEANING YOUR FIREARM

- Firearms must be cleaned after every use to keep them in top condition. Every hunter should have a kit with all the components for a thorough cleaning.
- Always give firearm cleaning your full attention. Never clean a firearm while doing something else. Work on a cleared table or bench.
- Follow these basic steps to clean your firearm:
 - Point the muzzle in a safe direction and make sure the gun is unloaded.
 - Remove all ammunition from the cleaning bench.
 - For the most thorough cleaning, field strip the firearm following the owner's manual and clean each part separately.
 - If possible, clean from the breech end using a cleaning rod with a brush or patch attached. Pass the brush or patch all the way through the muzzle. Because the chamber diameter is greater than the bore, you may need a chamber brush and a larger patch. Follow the instructions included with the cleaning kit.
 - Use cleaning solvents in a well-ventilated area and only as directed.

Cleaning a Rifle

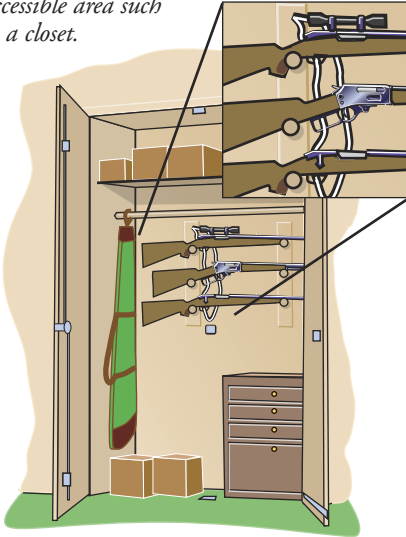


Cleaning Kit

- A stand to hold the firearm securely in a horizontal position
- Cleaning rods
- Assorted rod tips—brushes, mop tips, slotted tips, jag tips
- Patches appropriate for the caliber or gauge of the firearm
- Gunsmith screwdrivers
- Gun oil
- Solvent
- Gun grease
- Dental mirror
- Toothbrush
- Bore light
- Clean cloths
- Cotton swabs
- Pipe cleaners

Storing Firearms

Store firearms with a locking device if stored in an accessible area such as a closet.



Storing Ammunition

- Store ammunition, reloading supplies, and firearms in separate locked compartments.
- Keep all ammunition away from flammables.
- Store ammunition in a cool, dry place to prevent corrosion. Corroded ammunition can cause jamming, misfires, and other safety problems.

STORING YOUR FIREARM

- Firearms must be stored *unloaded* and in a *locked* location, *separate from ammunition*. The storage area should be cool, clean, and dry. Storing firearms in closed gun cases or scabbards isn't recommended because moisture can accumulate.
- Store guns horizontally, or with the muzzle pointing down. When guns are stored upright, gravity pulls gun oil downward into the action, which forms a sticky film. Oil also can drain onto the stock, softening the wood.
- Displaying guns in glass cabinets or wall racks is an invitation to thieves and curious children. Ideally, guns should be hidden from view and locked. Storage devices with hidden compartments are available. For the best protection against theft and fire damage, purchase a safe.

Objectives You should be able to...

- Define good marksmanship and explain why it is important.
- List the three fundamentals of good marksmanship.
- Define sight alignment and a sight picture.
- Demonstrate how to determine your master eye.
- Explain the basic steps to sighting-in a rifle.
- Explain four rifle firing techniques that will help improve accuracy.
- Show four proper positions for rifle shooting.
- State the four common shotgun chokes and give an example of when you would use each.
- Explain the basic steps to patterning a shotgun.
- Explain four shotgun firing techniques that will improve accuracy.
- Demonstrate proper shotgun shooting stance.
- Explain the difference in swing-through and sustained lead when hunting with a shotgun.
- Demonstrate proper handgun shooting stance and grip.

GOOD MARKSMANSHIP AND ACCURACY

A fair amount of knowledge, skill, and experience is required to become a successful hunter. One of the essential skills is good marksmanship, which is accurately and consistently hitting the target where planned. When hunting, accuracy is critical for a clean kill. Good marksmanship is built on three fundamentals:

- Proper sight adjustment or patterning
- Proper shooting technique
- Practice

Know Your Accuracy Limits

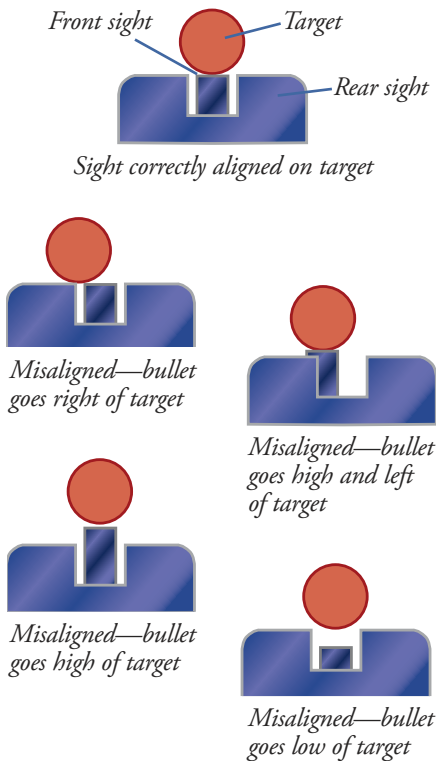
Ethical hunters know their personal accuracy and limit their shots accordingly.

- An 8-inch paper plate is the standard target for establishing deer hunting shooting accuracy. An 8-inch target is about the same size as the vital area of a deer. You need to be able to hit the paper plate consistently at the same distance and from the same shooting position you will be using when hunting. The fact that you can hit an 8-inch target at 100 yards from a bench rest does not mean you will be able to do the same from a standing or kneeling position.
- Before hunting, practice until you are confident you can hit the required target at the distances and from the shooting positions you expect to use in the field. When hunting, limit your shots to your most accurate range.



strapped
chngd to
wrap

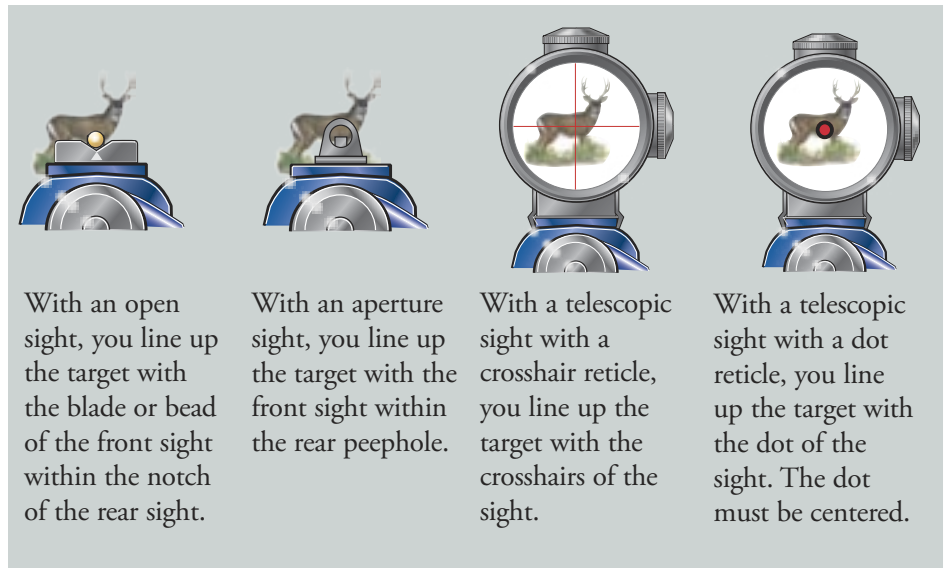
Aligning an Open Sight



RIFLE SHOOTING

Sight Alignment

Sight alignment is the process of lining up rear and front sights. The sight picture is the image you see when the sights are aligned correctly with the target. To ensure that the bullet will travel to the target in your sight, it's necessary to sight-in your rifle. But before you can do that, you need to determine your dominant or "master" eye.

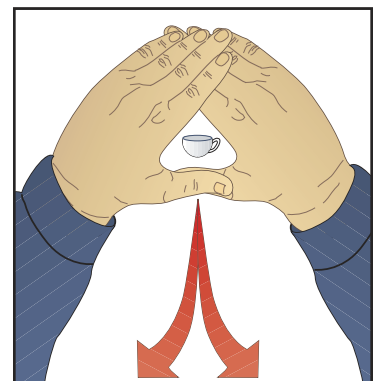


Remember...

Good vision is the foundation for good shooting and hunting safety. Have your eyes examined on a regular basis.

Dominant or Master Eye

- Just as you have a dominant hand, you also have a dominant eye. You need to aim with the dominant—or master—eye for the most accurate shooting. Usually your dominant eye is the same as your dominant hand, but not always.
- To determine your dominant eye:
 1. Form a triangular opening with your thumbs and forefingers.
 2. Stretch your arms out in front of you.
 3. Focus on a distant object while looking through the triangular opening.
 4. Bring your hands slowly to your face, keeping sight of the object through the opening; the opening will naturally come to your dominant eye.
- If you're not sure, close one eye at a time. The weak eye will see the back of your hand; the strong one will be focused on the object in the triangle.

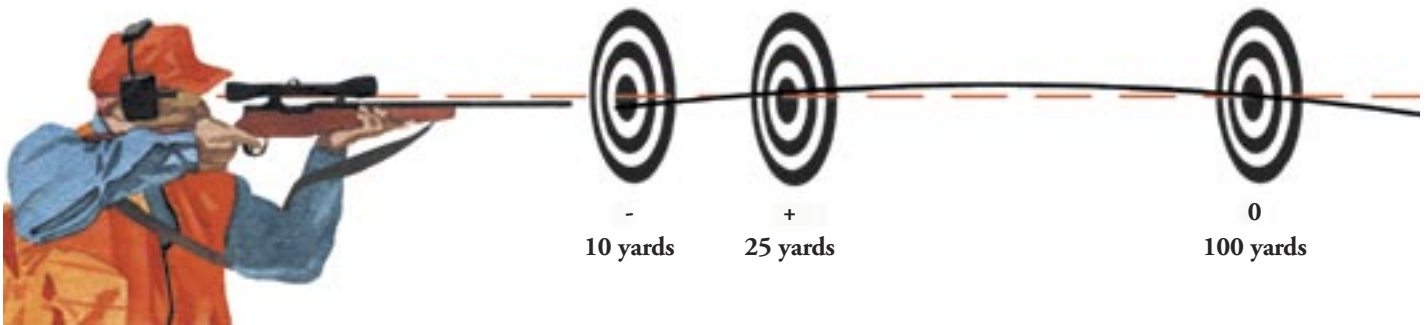


Sighting-In a Rifle

- Rifle bullets don't travel in a straight line. They travel in an arc, formed by the pull of gravity. "Sighting-in" is a process of adjusting the sights to hit a target at a specific range. Deer hunters, for example, often sight-in their rifles to hit the bull's-eye at 100 yards.
- All rifles should be sighted-in before every hunt using the ammunition you plan to use, especially rifles with peep or telescopic sights. Guns you sighted-in prior to your last outing could have been knocked out of alignment by a single jolt. That misalignment could mean the difference between a successful hunt and a disappointing experience.

Remember...

You must sight-in your rifle with the ammunition you plan to use. Be sure you sight-in and practice shooting your rifle before you go hunting.

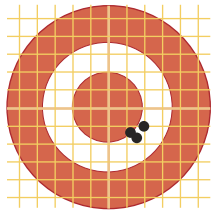


- Other than ensuring accurate shots, sighting-in a rifle has other advantages:
 - Forces you to practice.
 - Helps determine problems with your shooting technique.
 - Builds confidence in your shooting ability.

Optional Sighting-In Techniques

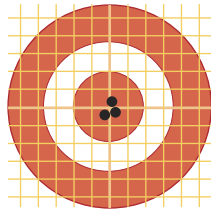
Use bore or collimator sighting-in initially to get on the paper target. However, these techniques alone are not sufficient to sight-in a rifle. You must make final adjustments by shooting the rifle with the same ammunition you plan to use in the field.

- **Bore sighting-in with bolt-action rifles:** Remove the bolt, brace the firearm on sandbags, and look directly through the bore. Correct the rifle's position until you see the bull's-eye in the center of the bore. Adjust the sights to give you a good sight picture.
- **Collimator sighting-in for rifles without bolt actions:** A collimator slips into the muzzle end of the barrel and allows you to adjust sights much like bore sighting-in.



*Adjust sights
up and left*

*Rifle correctly
sighted-in for
this particular
range*



Use a sight-in target to adjust your sight.

minutes-of-angle:

The standard measurement unit of shooting accuracy; one minute-of-angle (MOA) is 1/60 of one degree, or approximately one inch, at 100 yards

Six Steps for an Accurate Rifle Shot

1. Aim carefully.
2. Take a breath.
3. Relax.
4. Release half of your breath.
5. Squeeze the trigger slowly.
6. Follow through.

parallax:

Optical bending of telescopic crosshairs in relation to the target

Sighting-In Procedure

- Fire your rifle from a solid bench rest with your forearm resting on a pad or a sandbag. Don't rest the gun on its barrel—it will shoot higher than normal. Ideally, use an adjustable shooting tripod with sandbags. A spotting scope is also useful.
- Sight-in instructions are printed on some targets available from retail outlets or manufacturers. The sighting-in process for most centerfire rifles begins at 25 yards and then should be repeated at 100 yards. The basic steps involve firing at least three shots carefully and consistently at a target. If the bullets form a relatively small group of holes on the target, but not where you were aiming, the sights will have to be adjusted.
- When adjusting peep or telescopic sights, the rear sights or dials are adjusted by a certain number of **minutes-of-angle** or “clicks” in a certain direction. Read the sight's instruction manual to see how much each click changes the sight at 100 yards.
- The rear sight is moved in the same direction you want your shot to move on the target. Moving shots from side to side is “adjusting for windage.” Moving shots up or down is “adjusting for elevation.”
- Specific instructions about trajectory and what fractions or inches you should be above the bull's-eye at 25, 50, or 100 yards are usually included on sight-in targets. You also might consult a ballistics chart or get help from an experienced shooter.

Rifle Firing Techniques

Using correct firing techniques will help you steady the rifle for the most accurate shooting. Bear in mind that these are only the basics. Further study will help you understand other factors that can affect your accuracy, such as wind, heat, and **parallax**.

- **Shooting from a Rest:** When shooting in the field, the safest and most accurate shots are taken from a rest—a log, rock, or stump. To prevent the rifle from bouncing when fired from a hard surface, put some padding, such as a hat or a coat, under the rifle, or use your hand.
- **Breathing:** Your breathing can move the rifle just enough to throw off your shot.
 - When you're ready to shoot, draw a deep breath and exhale about half of it.
 - Then hold your breath as you squeeze the trigger.
 - Bear in mind that if you hold your breath too long your heart beats faster, which increases your pulse and causes the rifle to move. If you notice this happening, take another breath and start over.
 - At times the excitement of spotting game will make it more difficult to control your breathing. Try to relax and follow the correct procedure.
- **Trigger Squeeze:** Jerking the trigger or abruptly clenching the trigger hand can move the gun enough to cause a miss.
 - To pull the trigger without jarring the gun, simply apply slow, steady pressure until the gun fires.
 - Practice will make holding your breath and proper trigger squeeze habitual.
- **Follow Through:** After the bullet fires, it's important to continue the squeeze or follow through. That prevents you from jerking the gun before the bullet has left the barrel.

Shooting Positions

There are four standard rifle shooting positions: prone, standing, sitting, and kneeling.

Prone

The prone position is the steadiest of the four positions. Because it's the easiest to hold, it's the best position for mastering the fundamentals of shooting—aiming, breath control, trigger squeeze, and follow through.

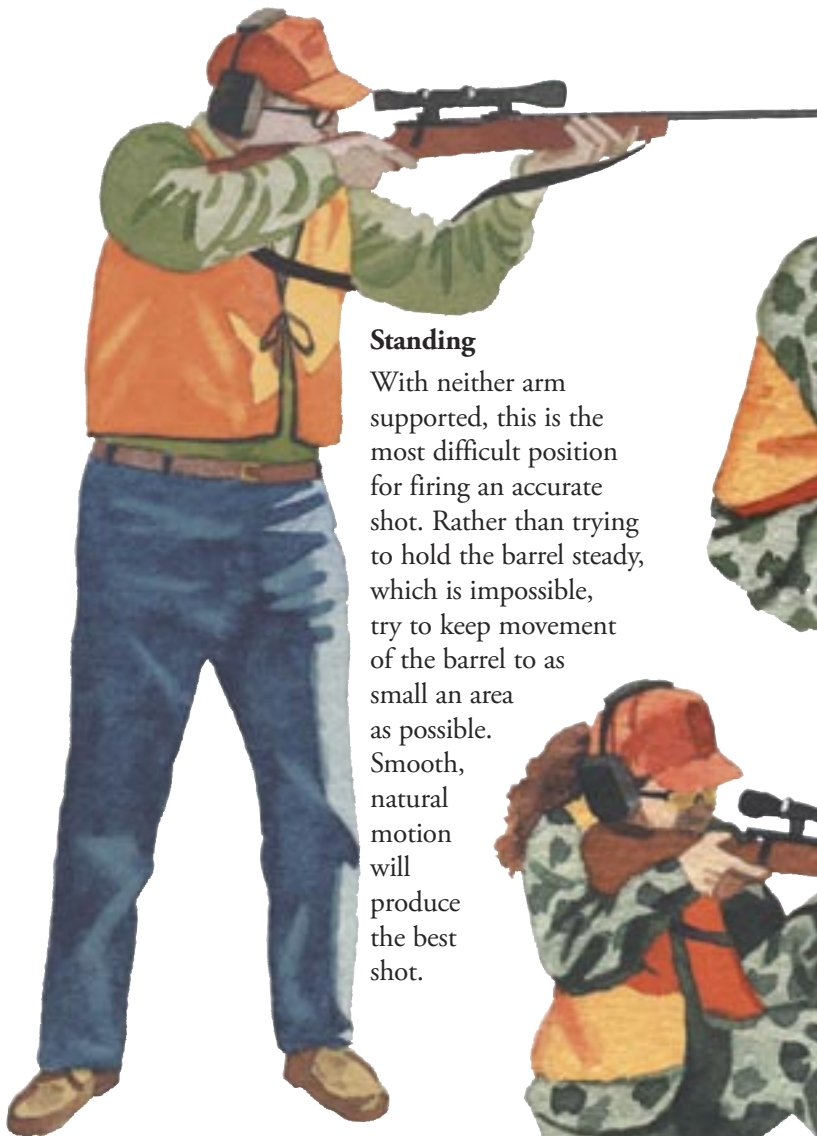


Safety TIP

Always wear suitable eye and ear protection when shooting. They will protect your vision and hearing for a lifetime of shooting enjoyment.

Standing

With neither arm supported, this is the most difficult position for firing an accurate shot. Rather than trying to hold the barrel steady, which is impossible, try to keep movement of the barrel to as small an area as possible. Smooth, natural motion will produce the best shot.



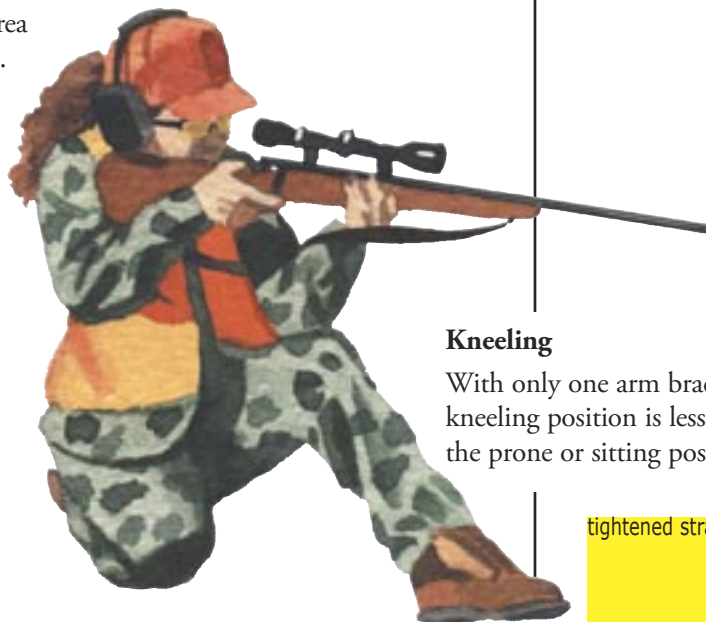
Sitting

Both arms are supported by your legs. Next to the prone position, this is the steadiest position.



Kneeling

With only one arm braced, the kneeling position is less steady than the prone or sitting positions.



All illustrations on this page changed to show the strap wrapped around shooter's arm

tightened strap on hunter-kneeling position



*Point a shotgun.
Focus your eye
on the target.*

Remember...

*Point a shotgun. Pull the trigger.
Aim a rifle. Squeeze the trigger.*



*Aim a rifle.
Focus your eye
on the crosshairs
or front sight.*

SHOTGUN SHOOTING

As with rifle shooting, good shotgun marksmanship begins with proper preparation, which includes adjusting your gun and ammunition for maximum performance and mastering shotgun techniques.

Matching Choke to Your Quarry

- A choke allows you to fine-tune your shotgun for the type of game you're hunting. Built-in or attached to the muzzle end of the barrel, the choke can be constricted to create a tighter pattern of shot, thus controlling pattern density at various distances.
- The tighter the constriction, the longer the cluster of shot stays together. The looser the constriction, the faster the shot pattern spreads. Recall from Chapter 2 that the most common chokes, ranging from tightest to widest, are:
 - Full
 - Modified
 - Improved Cylinder
 - Cylinder (unchoked)
- For example, someone hunting small, fast birds would generally use an improved cylinder or modified choke, which creates a broad shot pattern that spreads quickly at close ranges. Conversely, someone hunting a larger, less mobile bird, such as a turkey, would select a full choke, which concentrates the shot in a tighter pattern. Pellet size also varies based on the size of the game. The chart below suggests choke and shot sizes for a variety of game. It is intended only as a guide—choice of choke and shot size may vary depending on ammunition, target distance, and hunting conditions.

Quarry	Suggested Choke	Suggested Shot Size
Goose	Improved Cylinder or Modified	Steel 2, 1, BB (over decoys) Steel BB, BBB, T (pass shooting)
Duck	Improved Cylinder or Modified	Steel 6, 4, 3 (over decoys) Steel 3, 2 (pass shooting)
Turkey	Full or Extra Full	Lead 4, 5, 6
Pheasant	Improved Cylinder or Modified	Lead 6, 7 ½ (over dogs in heavy cover)
	Modified or Full	Lead 4, 5, 6 (in corn fields, long range)
Grouse	Improved Cylinder or Modified	Lead 7 ½ or 8
Woodcock, rail, or snipe	Improved Cylinder or Modified	Lead 8 (in heavy cover)
		Lead 7 ½ (open areas)
Dove	Improved Cylinder or Modified	Lead 7 ½ or 8 Steel 6 (in water fowl areas)
Quail	Improved Cylinder or Modified	Lead 7 ½ or 8
Rabbit	Improved Cylinder or Modified	Lead 5 or 6
Squirrel	Modified or Full	Lead 5 or 6

Patterning Your Shotgun

- No two shotguns will fire identical pellet patterns. In some cases, the pattern will be off center. In other instances, there may be gaps in the pattern. In addition to the firing characteristics of the gun, the gun's choke, the brand of shot shell, shot size, and type of shot also affect the pattern. In order to select ammunition that provides the best performance, it's necessary to "pattern" your shotgun.
- Patterning can be done with commercial or homemade targets. All that is required is a sheet of paper with a 30-inch circle containing a bull's-eye.
 - Fire from a distance of 40 yards, which is close to the maximum range for shooting game birds. At that range, the pellets should be spread fairly evenly inside the 30-inch circle.
 - The pattern of pellets should be of sufficient density to ensure a clean kill.
 - The circle also should contain the correct amount of pellets, which ranges from 40 to 80 percent of the total number of pellets in the load, based on the choke you're using.
 - For instance, using a full choke, 12-gauge, 3-inch load, you should expect 70 to 80 percent of the pellets to land in the circle. A modified choke should deliver 60 to 70 percent in the circle, and an improved cylinder should deliver 40 to 50 percent.
 - To determine the percentage, count the number of pellet holes in the circle, and then divide that number by the number of pellets in the load.

Shotgun Firing Techniques

Unlike rifle shooting, quick reflexes and flexibility are essential for effective shotgun shooting. Proper shotgun techniques will help you develop the rapid, fluid response you need to hit your target.

■ Shooting Stance

- A shotgun is almost always fired at a moving target from a standing position. You must be able to swing freely over a wide arc and maintain control. That requires a relaxed, balanced stance.
- Stand with your feet apart shoulder-width and your weight evenly balanced. Bring your left foot slightly forward (if you're a right-handed shooter) and lean your body in the same direction. The position of the feet is important. The toes of your forward foot should point toward the target. Take the time to place your feet properly, even for a quick shot.
- Keeping your knees slightly bent makes it easier to swing with a moving target. The bent leg to the rear supports the movements of your hips, allowing you to swing smoothly.

■ Pointing

- Because targets usually appear suddenly and move quickly, there's no time to "aim" a shotgun. It's designed to be pointed, with the eye sighting a little above the barrel or rib.
- The sight is usually a bead on the front of the gun. Your eye must be in line with the barrel, so it's important to position your head properly on the stock.
- When you bring the gun to your shoulder, your cheek should fit snugly against the stock, providing a proper sight picture. If you can't assume that position comfortably, you may need to adjust the "gun fit." Most shotguns are designed to fit the average shooter, but you can make adjustments, such as changing the stock to fit you better.



Use a relaxed, balanced stance with your feet apart shoulder-width and your weight evenly balanced. Bring your left foot slightly forward (if you're a right-handed shooter) and lean your body in the same direction.

Remember...

Shots at game birds in flight should be limited to your "maximum effective range." This is the distance at which you can consistently hit the target. Shooting beyond this distance leads to increased wounding loss. Also, firing at game too close may destroy the meat.



Snap-Shooting

Snap-shooting is a technique to use if you must make a quick shot and the target is straight ahead at close range. You simply raise the shotgun and point where you think the target will be when the shot arrives.

■ **Shouldering the Shotgun**

- When you bring the shotgun to your shoulder, the stock should be brought to your cheek first and then back to your shoulder.
- A common error is lowering the head and cheek to the stock, instead of bringing the stock all the way up to the cheek. When done properly, with your head naturally erect, the gun butt should always come to the same spot on your shoulder.

■ **Trigger Action**

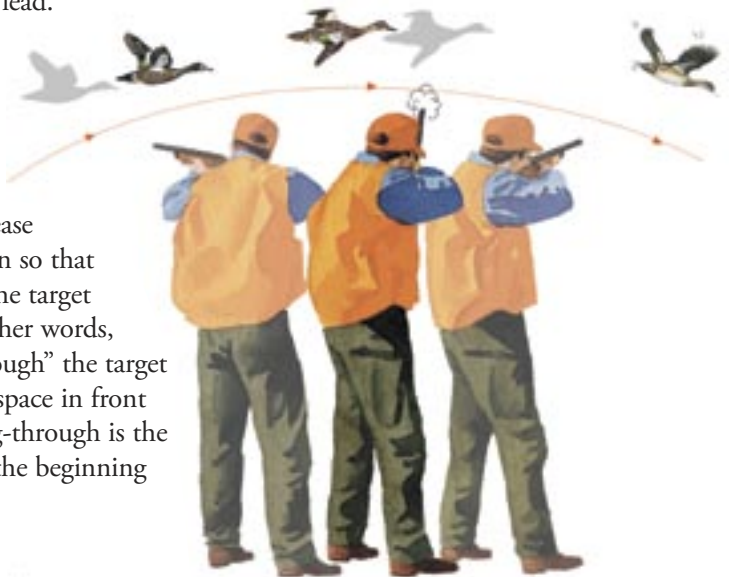
- Unlike rifle shooting, quick trigger action is important when hunting with a shotgun. Tap the trigger in much the same way you would strike a typewriter key.
- Because the trigger is pulled quickly and the body and gun are typically in motion, breath control isn't necessary.
- Continue the shotgun's swing as you pull the trigger. Stopping the swing as you shoot will cause you to hit behind a moving target.

Leading the Target

The two most common methods of leading targets at long distances are swing-through and sustained lead.

■ **Swing-Through**

Point your shotgun at a moving target and swing with it. Increase the speed of the gun so that the muzzle passes the target and then fire. In other words, literally “swing through” the target and fire at a blank space in front of the target. Swing-through is the best technique for the beginning student.



■ **Sustained Lead**

This method is a little more challenging because it requires more experience. You estimate the length of the lead necessary to hit the target, maintain that lead as you swing with the target, fire, and continue the swing.

HANDGUN SHOOTING

Hunting with handguns has been growing in popularity in recent years. Many of the fundamentals of rifle shooting also apply to handguns.

Loading and Handling

- Single-action revolvers typically load through a gate on the right side of the frame. To rotate the cylinder, pull the hammer back to half-cock. For a safer carry in the holster or hand, leave an empty cylinder in front of the hammer.
- Double-action revolvers have cylinders that fall downward, exposing all chambers for loading.
- Semi-automatics usually fire rounds stored in a magazine that is inserted in the grip or handle.

Position and Grip

- Body position and grip are vital to hitting the target. The hand position on the grip of a pistol is especially critical. Although the grip configuration of the revolver and semi-automatic are different, the gripping procedure is the same.
- Hold the handgun high on the grip so that the recoil is directed back to the hand and arm in a straight line. This allows better repeat shots and more accurate shooting. Use a two-handed hold whenever possible, applying pressure from front to rear.
- When hunting, use a tree trunk, steady limb, or other stable object as a rest. Placing something soft, such as a hat or coat, on top of a hard rest helps with your aim.

Sight Alignment

- Sight alignment, which is important in rifle shooting, is even more important in pistol shooting because of the shorter distance between the sights. Typically, handgun sights consist of a square rear notch sight and a heavy square front blade sight. This arrangement is easy to align.
- Most handguns are initially sighted-in at 50 feet.

Aiming

- At the shooting range, many handgunners use a sight picture that places the bull's-eye on the top of the front sight, rather than placing it in the sights over the center of the target. However, hunters should hold the alignment directly over the vital area.
- Scopes with long eye relief have become popular with handgunners and offer exact sighting for hunters. Scopes may take longer to align on a target than open sights, but they're usually more accurate.

Shooting

The pistol shooting fundamentals of trigger squeeze, breath control, and follow through are almost identical to those in rifle shooting. Some important differences to remember include:

- The first joint of the finger should take up trigger pressure, not the tip as is often done with rifles.
- When a revolver is fired, powder flashing at the front of the cylinder can cause burns. Be sure to keep fingers away from the front of the trigger area.
- The slide and hammer of an autoloader can deliver a bruising blow when held too close to the body. All handguns should be fired at arm's length.

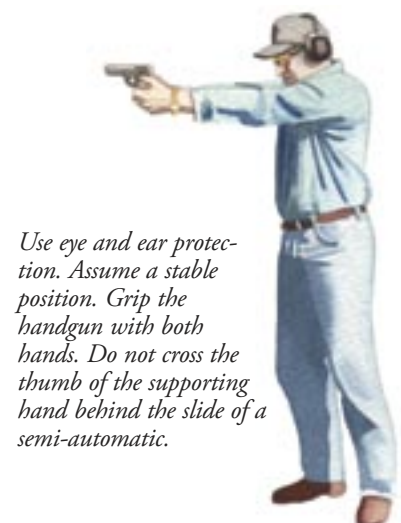
Safety TIP

- Hearing protection is especially important with handguns because the muzzle blast is loud and close to your head.
- Eye protection is essential with handguns to prevent damage from a burst shell, punctured primer, or lead spitting from a poorly aligned cylinder.



Remember...

- Use a good holster with a safety strap.
- Draw your gun only when you see game.
- Cock your gun only when ready to shoot.
- Keep your finger off the trigger until ready to fire.



Use eye and ear protection. Assume a stable position. Grip the handgun with both hands. Do not cross the thumb of the supporting hand behind the slide of a semi-automatic.

Objectives

You should be able to...

- Explain why it is important to know how to recognize your quarry.
- Name the four basic animal characteristics that can be used for identification.
- Describe five different hunting strategies.
- Explain why it is important to know where to place a vital shot for the game you are hunting.
- Identify the vital zones for various game when viewed from different angles.
- List four types of shots and when they should be used and when they should be avoided.
- Explain what to do when approaching downed game.
- State what is the first thing you should do after you are sure your game is dead.
- List the three main causes of meat spoilage.
- List the basic steps for field dressing.



It is critical that you educate yourself about your quarry when preparing to hunt. Understanding game species will add to the enjoyment and increase your chances of success as well.

PLANNING AND PREPARATION

- A successful hunt begins with careful planning and preparation. The process usually requires more time than the hunt itself.
- Here are some steps you should take to prepare for a hunt:
 - Educate yourself about the game you'll be hunting and its environment.
 - Obtain the most current state regulations.
 - Buy appropriate clothing and gear for the environment.
 - Secure lease arrangements and permits (dogs and horses may require a veterinarian's certificate or a current vaccination record).
 - Visit the site in the off-season to prepare blinds and cabin facilities.
 - Sight-in rifles and bows; pattern shotguns.
 - Sharpen your skills at the shooting range.
 - Pack extra firearms, scopes, extra bow strings, etc.

Know Your Quarry

- Of all the steps of preparation, educating yourself about the game you're hunting is one of the most critical. Understanding your quarry will increase your success and add to the enjoyment of the experience as well.
- In many cases, knowing your quarry is also necessary to ensure that you're taking legal game. For example, you may need to determine the sex of game birds on sight or quickly recognize protected species as they move into firing range. If you hunt in a region where white-tailed and mule deer occupy the same area, you'll need to know how to identify both.
- There are many ways that wild animals are classified, but hunters are concerned with four basic categories:
 - **Large mammals:** Big game, such as deer, elk, and bear
 - **Small mammals:** Small game, such as rabbits, squirrels, and raccoons
 - **Upland birds:** Turkey, grouse, quail, and dove
 - **Waterfowl:** Ducks and geese

Animal Characteristics

Whatever you're hunting, a basic understanding of an animal's characteristics will help you develop an effective strategy for identifying and tracking it.

- Animals can be identified by four basic characteristics:
 - **Distinctive Markings:** The black cheek patch on male pronghorns; the "flags" of the white-tailed deer; the face pattern on a gray fox; the green head on a mallard drake; the red, white, and blue of a male turkey
 - **Sounds:** The wild call of the sandhill crane; the familiar honk of the goose; the gobble of a strutting "tom"; the grunt of the deer; the howl of the coyote
 - **Movement:** The bounce of mule deer; the fast or slow wing beats of some waterfowl; the zigzag in-flight pattern of the common snipe when flushed
 - **Group Behavior:** Flock patterns, such as the familiar "V" shape of certain migratory birds; various types of herd behavior
- Further study will help you learn other ways to identify and understand your quarry, including signs the animal leaves, camouflage capability, and behavior.

HUNTING STRATEGIES

Hunting techniques are skills honed through education and experience. Ideally, beginners should seek the guidance of experienced hunters on their initial hunts.

Still Hunting

- As the name implies, still hunting is walking stealthily through an animal's habitat, stopping frequently—sometimes for long periods—to scan and listen for game. Typically, big-game hunters use this method in unfamiliar terrain or where stands are impractical or forbidden.
- As a general rule, spend at least ten times longer being still and observing than walking. Keep a low profile; a human silhouette will spook many game species. Use binoculars in open terrain to identify movement properly.
- If you still hunt effectively, game will be unaware of your presence but so will other sportsmen. To avoid being mistaken for game by other hunters, always wear fluorescent orange.

Stalking

- The difference between still hunting and stalking is that when stalking, you follow signs leading to a particular type of game or group of animals, or close the distance to game already spotted.
- You may follow tracks on trails or a morning "dew" trail through leaves and brush. Or you may follow sounds or scents of animals, such as elk, sheep, or collared peccaries. Or you may simply need to sneak closer to an animal for a better shot.
- Stalking requires total focus because you must remember to keep downwind, stay quiet, stay alert, and remain patient.
- Use caution when stalking a turkey. The sound you hear may be another hunter "calling."

new
bullet



Still hunting often involves stopping for long periods to scan and listen for game.



Stalking often involves following tracks to lead you to the type of game you are hunting.



Ground blinds, often made of branches, conceal the hunter.

Posting

- Posting involves sitting or standing in one spot. The location may offer a vantage point or a spot near the animal's trails.
- Posting is effective when you know where game is traveling each day and you're not allowed to use a blind or stand.
- The key to setting up a posting site is finding a location that allows you to freely swing your firearm or draw your bow.

Ground Blinds

- Ground blinds are makeshift or temporary structures located on the ground that conceal the hunter. They're made of everything from plywood to branches.
- You should situate ground blinds:
 - Downwind, based on the normal wind pattern during a given time of day, such as morning
 - Away from the sun
 - Where the foreground and background are safest

Elevated Stands

- Elevated stands (tower stands or tree stands) offer a number of advantages to both firearm and bow hunters. Tower stands are above-ground seats or blinds that conceal the hunter above the level of the quarry. Tree stands are stands placed in or against trees.
- You should check the condition of elevated stands routinely. Also, inspect for insects, owls, and small mammals before entering the stand. Read more in the "Hunting from Elevated Stands" section in Chapter Six.

Game Calling

- Calling is an effective technique for most animals. There are a variety of sounds that can be imitated to draw game to you:
 - **Territorial sounds:** Deer "rattling," elk "bugle," or a turkey "gobble"
 - **Feeding sounds:** A duck's feeding "chuckle"
 - **Distress sounds:** Inviting coyotes, bobcats, or foxes to feed
- There are hundreds of sounds that can attract all types of wildlife. A skillful hunter uses these sounds to attract animals close enough to him or her for an effective shot.

Driving

- Driving involves a group of hunters, some acting as "drivers" and others as "posters":
 - Drivers spread out across a field or woods and push game out of cover.
 - Posters take positions at the end of the cover to intercept game pushed out by the drivers.
- The success of a drive depends on good organization and being familiar with the terrain.
- It is critical that everyone involved in the drive is aware of the position of other drivers and posters. Wear fluorescent orange, and never shoot in the direction of another hunter.

vest
and
pants
chg'd
to
camo



A skillful hunter uses sounds to attract the quarry close enough for an effective shot.

Remember...

When hunting with a group, it is illegal in most states to use your license tag on another person's kill.

Flushing

- Flushing involves using noise, movement, or dogs to cause game to become nervous and leave cover.
- Pause frequently when attempting to flush game. By varying your pace, your quarry may think it has been detected and be more likely to leave cover.

Dogs

- There are several breeds of dogs that can be used for hunting different game species. Some dogs can be used to hunt several types of game animals.
 - **Pointers** are used primarily for upland game birds.
 - **Retrievers** are large, hearty dogs used primarily to retrieve waterfowl; they also can be trained to hunt other game birds.
 - **Spaniels** are used mainly as flushers.
 - **Hunting Hounds** are used to hunt raccoons and rabbits in the Southeast, lions and bears in the West, and deer in some states.

Trapping

- Trapping furbearing animals was once a full-time occupation, but now many people enjoy trapping for recreation and additional income.
- When used properly, traps can be an effective tool for hunting and wildlife management. Trappers should educate themselves about the type of traps appropriate for the animal they're seeking and adhere to the trapper's code of ethics:
 - Obtain the landowner's permission.
 - Avoid setting traps in areas where domestic animals may be caught.
 - Set traps to capture the target animal in the most humane way possible.
 - Check traps daily, preferably in the early morning.
 - Dispose of animal carcasses properly to avoid offending others.
 - Make an effort to trap only the surplus animals from each habitat, leaving an adequate breeding stock.
 - Assist farmers and other landowners who are having damage problems with wildlife.
 - Obtain all required licenses, tags, and permits.



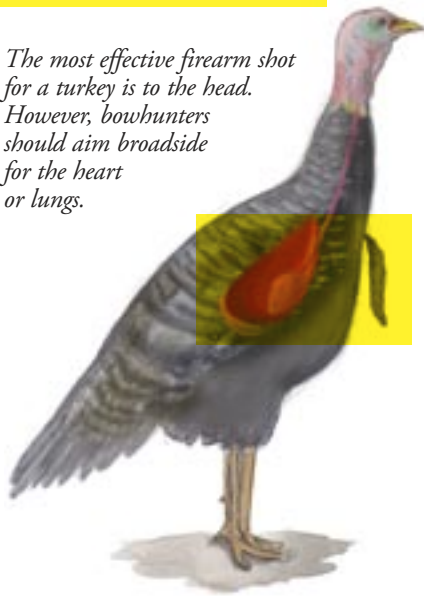
A trained hunting dog can be an excellent hunting partner.

Remember...

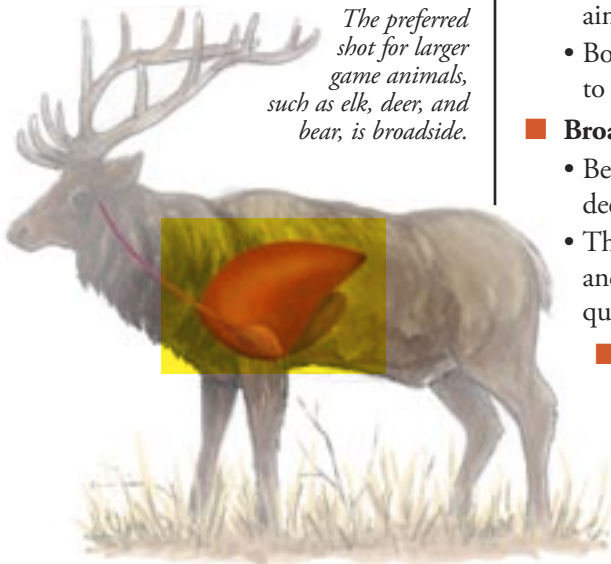
It's difficult to hit a vital area on an animal that is running or moving straight away from you. Rather than risk crippling the animal or ruining meat, wait for a better shot.

All animal graphics on this pg have been modified. Vitals on deer and elk re-positioned, beard/spurs added to turkey

The most effective firearm shot for a turkey is to the head. However, bowhunters should aim broadside for the heart or lungs.



The preferred shot for larger game animals, such as elk, deer, and bear, is broadside.

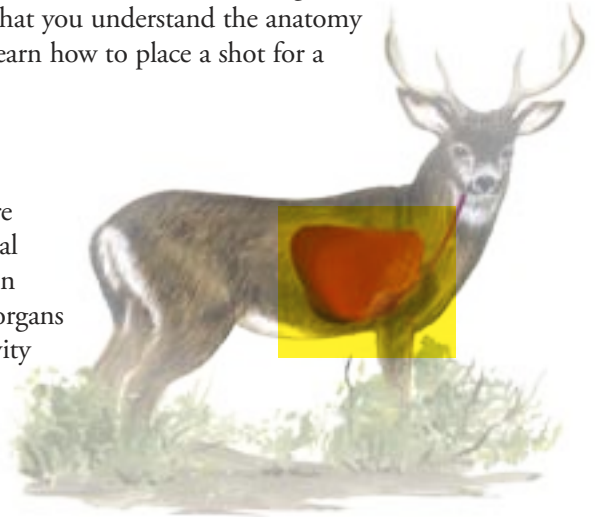


VITAL SHOTS

Every hunter wants to bring home the game he or she is seeking; true sportsmen strive to do it by inflicting a minimal amount of suffering. To achieve these twin goals, it's essential that you understand the anatomy of the game you're after, and learn how to place a shot for a clean kill.

Where to Shoot

- The most effective shots are delivered to an animal's vital organs—heart and lungs. In large game animals, these organs lie in the forward body cavity behind the front shoulder. A lung shot is the most effective shot for big game.
- The area of the vital organs also contains major blood vessels and arteries. A shot in this area causes considerable bleeding. If the animal doesn't die immediately and tries to flee, it will leave a blood trail that's easy to track.
- Aside from being a good marksman, the key to a clean kill is patience. Hunters should limit shots to the vital organs only. If you do not have clear shot to the vital organs, wait until the animal presents the best possible shot.



Types of Shots

■ Quartering-Away Shots

- The quartering-away shot is when your target is facing away from you, but at an angle. It's an effective shot on deer, antelope, and similar-sized game. From this angle, a shot aimed at vital organs may miss the rib cage entirely. There's also less tissue to pass through before penetrating vital organs.
- Rifle hunters should use the chest area above the opposite front leg as the aiming point for a lung shot.
- Bowhunters using cutting point broadheads for this type of shot are less likely to encounter heavy bone and thus increase their chances of hitting a vital organ.

■ Broadside Shots

- Because of their mass, the preferred shot for larger game animals, such as elk, deer, and bear, is broadside.
- This is particularly true for bowhunters. Large animals have bigger stomachs and intestines, which may stop an arrow before it reaches vital organs in a quartering-away shot.

■ Straight-On Shots

- A straight-on shot can be effective if your firearm is already positioned for the shot. However, they rarely result in a clean kill and ruin a lot of meat.
- For large game, aim for the chest or neck.
- This shot should not be taken by bowhunters because of the reduced chance of hitting a vital organ.

■ Quartering-Forward Shots

- The quartering-forward shot is when your target is facing toward you, but at an angle. A deer or other game quartering toward you presents a clear shot to the vital organs. A rifle shot can be taken at this angle if the gun is already trained on the animal.
- Rifle hunters should use the chest area above the near front leg as the aiming point for a lung shot.
- Bowhunters should avoid this shot because the vital areas are protected by bone. Also, an arrow should not be fired at an animal that is looking at you.



Approaching Downed Game

- A downed deer or other large animal should be approached carefully from **above** and behind the head.
 - If the animal appears to be dead, wait a short distance away for a few minutes. Watch for any rise and fall of the chest cavity.
 - Notice if the eyes are closed—the eyes of a dead animal are usually open. You can be certain that the animal is dead if the eye doesn't blink when touched with a stick.
- If the animal is still alive, it should be finished with a quick shot to the base of the ear. If you wish to mount the head, place your shot in the heart-lung area. For bowhunters, the only option is placing an arrow in the heart-lung area.
- Once the animal is dead, immediately tag it, indicating the date of kill. Then begin field dressing.

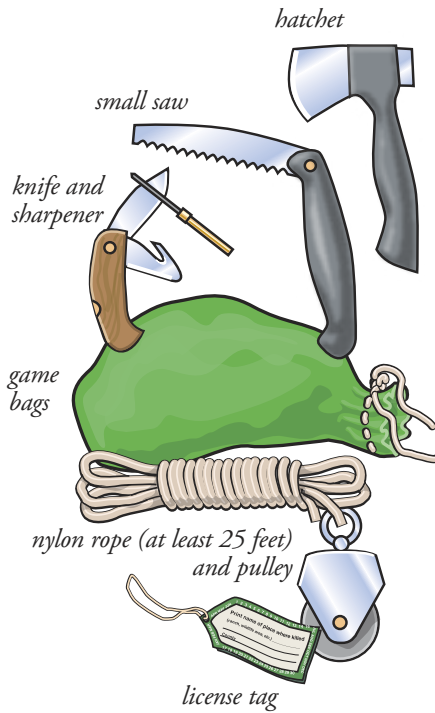


Approach downed game from **above and behind the head**; and wait a short distance away, watching for any rise and fall of the chest cavity.

Trailing Wounded Game

It is a hunter's ethical responsibility to stop the hunt and search for any animal he or she has wounded.

- You should wait for at least a half-hour to an hour before trailing a deer, unless the downed deer is in sight.
- Make a practice of carefully observing every movement of a game animal after you shoot it. Investigate the ground and trail after shooting before assuming you missed.
- Once at the site of the shot, look for signs:
 - Blood on the ground or vegetation
 - Broken twigs, branches, or scattered leaves
 - A "dew" line if early in the morning
 - Tracks
 - Hair, meat, or bone fragments
 - Downhill trails, especially toward water
- If you lose a trail, search in a circular or grid pattern and try to pick up the trail again.
- Use fluorescent orange flagging to mark the blood trail in case darkness or weather forces you to quit the search and return the next day. Marking the blood trail also shows where to look for more signs if you lose the trail. Be sure to remove the orange flagging after use.



Game Care Kit

Other typical items include:

- Fluorescent orange flagging
- Plastic or cotton gloves
- Gambrel and pulley system
- Whetstone or other sharpening tool
- Cooler and ice
- Cheesecloth bags for organs you plan to use as meat (heart, liver)
- Plastic bags for cleanup
- Hand towels
- Foil
- Large bag for caped or trophy head
- Salt (noniodized) for hide care

FIELD CARE OF GAME

The way you handle game after it's harvested can have a significant impact on the quality of the meat.

Field Care Basics

- Three factors contribute to spoiled meat:
 - Heat
 - Dirt
 - Moisture
- Heat is the number one concern. Bacteria grow rapidly in a carcass, especially if it's allowed to stay warm. Meat begins to spoil above 40° Fahrenheit. The higher the temperature—and the longer the meat is exposed—the greater the chance of spoilage. This is particularly true with large game.
- Basic field dressing techniques help cool game by removing entrails, which lowers body heat by allowing air into the body cavity. As a rule, it's best to field dress immediately.
 - When cooling the body, use available shade. Hang deer, if possible. For larger animals, prop the body open.
 - In warm weather, it's helpful to place squirrels and doves in a cooler after dressing, as long as they remain dry.
 - Dispose of entrails carefully. Don't leave them lying by the side of a road or near a residence where they can be dragged home by a dog.
 - Keep meat clean by covering it with cheesecloth. This also protects it from flies, which lay eggs in exposed flesh. Rubbing meat with black pepper will also repel insects. If you have to drag the game to camp, try to keep dirt and debris out of the chest cavity.
 - Because moisture damages meat, don't use excessive amounts of water to wash the cavity. Allow it to dry.
 - If you plan to process the animal yourself, skin the animal as soon as possible to allow the carcass to cool.
- Finally, a sure way to ruin meat—as well as earn the disdain of non-hunters—is to tie the animal to the hood or roof of a car, where it's exposed to heat, exhaust fumes, road salt, and airborne dust.

Transporting Game

- Keep the dressed game cool and free of insects. If you've quartered the animal, pack the quarters in ice chests—don't process the deer beyond quartering until you reach your final destination. Be sure to keep proper "evidence of sex" if required by your game laws.
- Most hunters take their game to a commercial meat cooler, where a typical white-tailed deer can be properly aged up to three or four days at 40° Fahrenheit.

Field Dressing Larger Game

Here are some additional tips for dressing large game:

- Because it's harder to move larger animals, you may need to skin and quarter the animal to pack it out, particularly in a remote area.
- If you're unable to hang the animal for skinning, begin by making a lengthwise cut and removing one side of the hide. Then turn the animal onto the skinned hide and skin the other side.
- To keep dirt off the meat, use the inside of the removed hide as a protective mat as you quarter the animal.
- Put each quarter in a game sack and attach the sacks to a backpack frame for the hike out.

Remember...

A clean kill improves the flavor of game meat. A wounded animal that has to be chased down yields strong-flavored meat because waste products, produced by stress, accumulate in the flesh.



When transporting game, be sure to keep it covered to avoid offending others.

tag
moved
to deer
antlers,
head
covered.

caption
added

Objectives

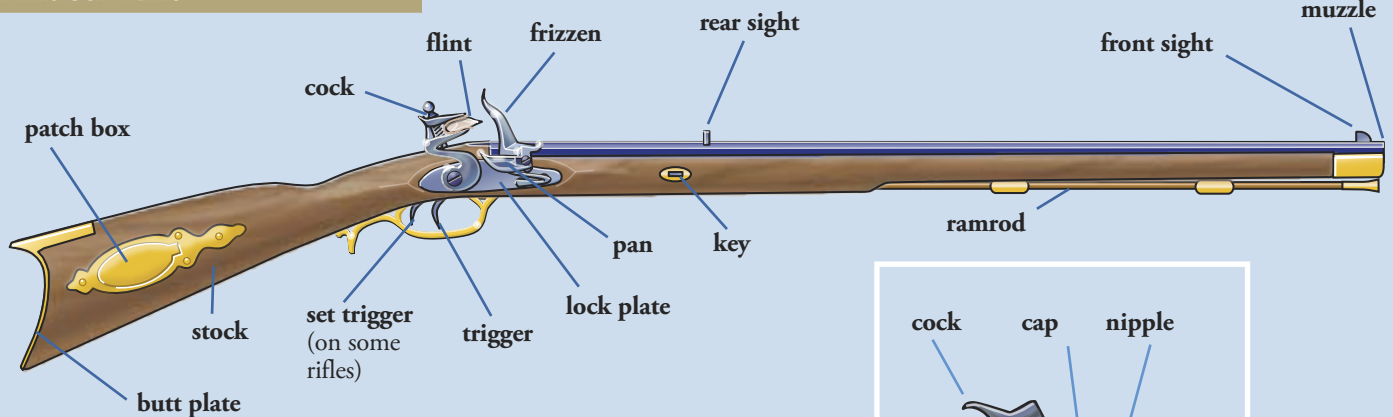
You should be able to...

- Identify the basic parts of a muzzleloader.
- Explain why you should use only black powder or a synthetic substitute in muzzleloaders.
- State three safety practices when using muzzleloaders.
- Demonstrate safe loading and unloading of a muzzleloader.
- Demonstrate safe firing of a muzzleloader.
- Identify the common bow types and their basic parts.
- Identify the basic parts of an arrow.
- List the different types of arrowheads and the primary use of each.
- State three safety practices for archers.
- Explain additional precautions that must be practiced when using broadheads.
- Explain the safety rules that should be followed when using a crossbow.
- Demonstrate how to nock an arrow and how to draw and anchor the bow.
- Demonstrate how to use a bowsight and how to instinctively aim a bow.

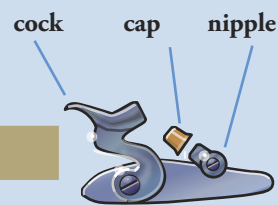
KNOW YOUR MUZZLELOADER

Primitive hunting arms include the muzzleloader firearm, the bow and arrow, and the crossbow. Today, these hunting arms are both collector's items and used for sporting purposes.

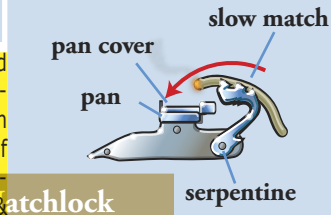
Parts of a Muzzleloading Flintlock Rifle



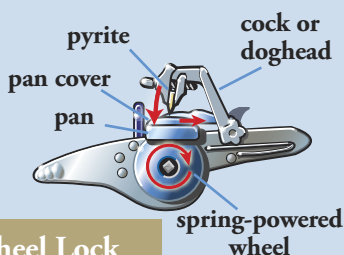
Parts of the Percussion Lock



added illustration of matchlock & wheel lock



Matchlock

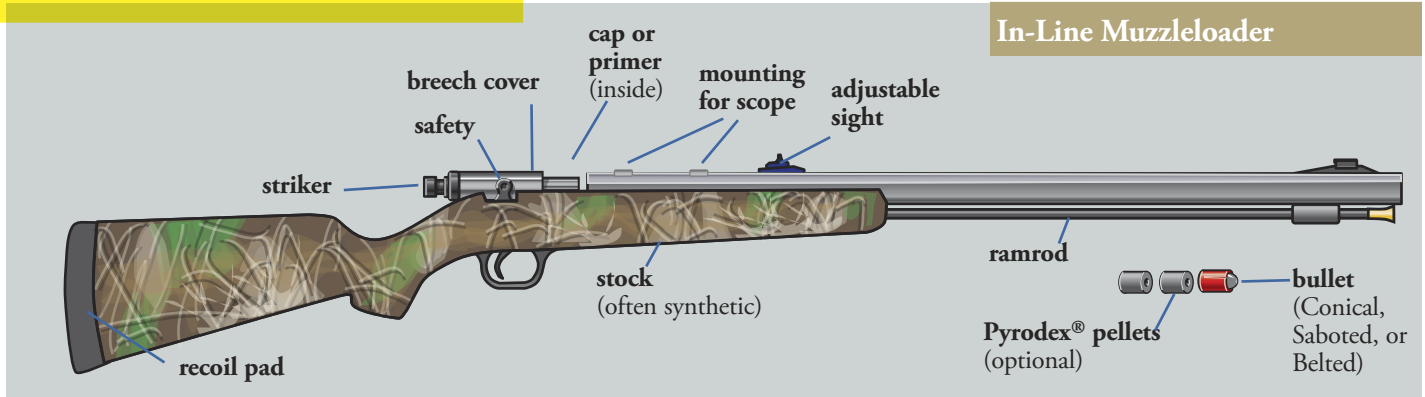


Wheel Lock

Muzzleloader is the term given to early firearms because they are loaded from the muzzle or open end. Read about the history of muzzleloaders on page 20.

- Locks took the place of actions on these early firearms. Matchlock and wheel lock muzzleloaders are rare and valuable, but they also may be unsafe to use. Flintlocks and percussion caps are the muzzleloaders typically used for shooting competitions and for hunting. They are generally less expensive, lighter, more reliable, and easier to load and maintain than matchlocks and wheel locks.

new illustration of in-line



In-Line Muzzleloader

- Muzzleloaders are most commonly rifles. However, there are also smooth-bored muzzleloaders—shotguns. Shotgun muzzleloaders can have either a single barrel or double barrels joined side-by-side. When loading the double-barreled, it's critical to avoid putting the two loads down the same barrel. Double-barreled guns usually have two locks, one for each barrel. This allows the shooter to fire each separately before the gun is reloaded. Most double-barreled guns were designed with two triggers.
- Muzzleloading handguns come as both pistols and revolvers. Pistols are mainly singleshoot. The revolvers contain multiple-shot chambers. Chain firing muzzleloading revolvers can be dangerous. When the chamber round is fired, it produces sparks that could accidentally ignite loads in another cylinder(s). Therefore, be sure to protect each load in the cylinder with a coating of grease to prevent sparks from entering the open end of the other cylinders.
- Black powder is the only type of powder that should be used in muzzleloaders. However synthetic substitutes, such as Pyrodex®, also may be used. Don't use modern-day smokeless powders in black powder firearms. Smokeless powders could cause serious injury if used in muzzleloaders.

BASIC MUZZLELOADER SAFETY AND SKILLS

Cleaning a Muzzleloader

- Firing a muzzleloader leaves a corrosive residue inside the barrel that causes pitting and reduces accuracy. The buildup of residue, called fouling, also will make loading difficult.
- To avoid fouling, swab the barrel with a moist patch after each shot. The patches or cleaning rags used to wipe the barrel must be the correct size and should be made of cotton or approved synthetic materials. Follow the recommendations of retailers who sell muzzleloaders or those who regularly use muzzleloaders.
- Thoroughly clean a muzzleloader after each shooting session. Black powder residue can damage the barrel if left overnight.
- Clean the gun's lock periodically. Normally it's held in place by one or two bolts. Once the lock has been removed, scrub both sides with an old toothbrush and hot water. Make sure the entire lock is completely dry, and then lightly oil and replace it.

Ammunition for Muzzleloaders

Three types of projectiles—the round ball, the bullet, and shot—are used in muzzleloaders. Most are melted and cast from pure lead.

Round balls are used mainly for target practice but also can be used for hunting. Bullets are preferred for hunting because they are generally more accurate at certain ranges. Shot pellets are designed to spread, just as with today's shotguns.

Black powder is made of potassium nitrate (saltpeter), sulfur, and charcoal. When ignited, it causes a dense cloud of white smoke. It comes in four sizes or granulations:

- **Fg:** Coarse grain typically used in cannons, rifles larger than .75 caliber, and 10-gauge shotguns or larger
- **FFg:** Medium grain typically used in larger rifles between .50 and .75 caliber, 20-gauge to 12-gauge shotguns, and pistols larger than .50 caliber
- **FFFg:** Fine grain typically used in smaller rifles and pistols under .50 caliber and smaller shotguns
- **FFFFg:** Extra-fine grain typically used as a priming powder in flintlocks

Pyrodex® and Clear Shot are black powder substitutes that can be used in amounts equal to black powder, but loading may vary. Be sure to get instructions from a qualified gunsmith for loading procedures. Substitutes are not recommended for use in flintlocks because they may not ignite from sparks as easily.

Basic Muzzleloader Safety

Muzzleloaders take significantly more knowledge to operate than modern firearms. They also present greater risks. Several rules must be followed to ensure safe operation.

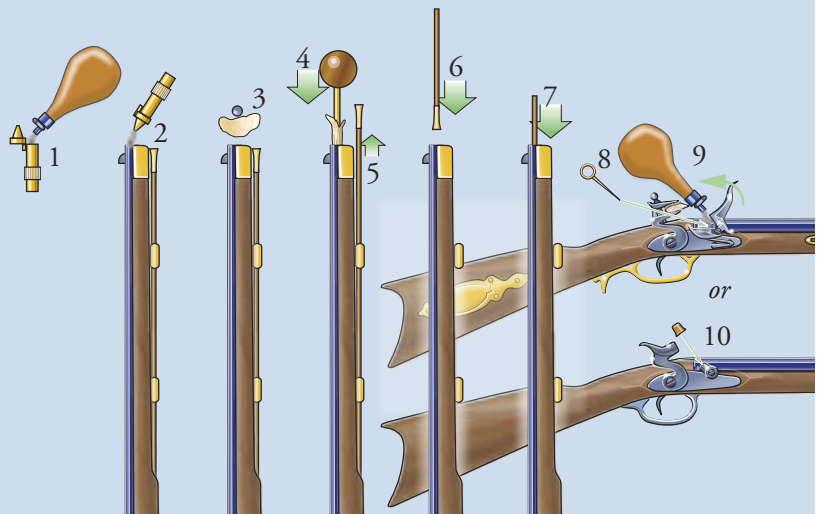
- Keep the muzzle pointed in a safe direction. Do not lean over, stand in front of, or blow down the muzzle.
- Use only black powder or a safe substitute in a muzzleloading firearm.
- Wait until you're ready to fire before you prime or cap a muzzleloader.
- Always wear shooting glasses and ear protection when shooting a muzzleloader; a long-sleeve shirt is also advisable.
- Never smoke while shooting or loading or when near a powder horn or flask.
- Load a muzzleloader directly from a calibrated powder measure—do not load from a horn, flask, or other container. A loose spark or glowing ember in the barrel can cause the powder to explode.
- Load only one charge at a time.
- Unload a muzzleloader before bringing it into your home, camp, or vehicle.
- Stay with your charged muzzleloader at all times.

Loading a Muzzleloader

- Loading or charging a muzzleloading firearm presents some special concerns because it requires the muzzle to be pointed upward.
- For rifles, position the butt on the ground between your feet. You should be facing the underside of the barrel. The muzzle should be pointed upward and away from your body. Never work directly over the muzzle.
- Determine if the gun is already loaded by **checking the muzzle with** a marked ramrod, which has an “unloaded” or empty marking. If you aren't sure, consult an experienced muzzleloader or gunsmith.
- Measure out the proper amount and type of powder using the calibrated **powder** measure. Replace the powder horn's cap, and swing the horn to the other side of your body. Pour the powder into the barrel from the measure. Tap the barrel to make sure all powder falls to the breech end.
- **Center a lubricated precut patch over the muzzle.** You can lubricate patches using a manufactured lubricant or using saliva by placing it in your mouth. Lay the ball on the patch with the spew or flat side up, if the ball comes with this feature. Then seat the ball and start it down the barrel using the short starter.
- Use the longer ramrod to push the ball the rest of the way, making sure it's well seated on the powder charge. Push the ramrod in short strokes, gripping it just a few inches above the muzzle. If you use longer strokes, you might accidentally snap the rod and injure your hands or arm. Your ramrod should be marked to show when the ball is properly seated over a specific load, such as 70 grains of FFFg powder.

Steps for Loading a Muzzleloader

1. Measure powder charge.
2. Pour measured powder down barrel.
3. Place patch and ball on muzzle.
4. Tap ball into barrel with starter.
5. Take out ramrod.
6. Ram ball down barrel.
7. Be sure ball is completely seated.
8. Clear vent hole with pick if necessary.
9. On flintlock muzzleloader, pour powder into pan and close frizzen.
10. On percussion muzzleloader, place cap on nipple.

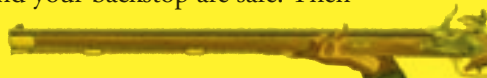


Unloading a Muzzleloader

- Unload a muzzleloader by discharging it into a suitable backstop. Do not fire into the air or into the ground at your feet in case the projectile ricochets.
- When a muzzleloader is unloaded, place your ramrod or loading rod in the barrel before leaning it against a good rest—this will prevent debris from falling down the barrel and blocking the touch hole.

Firing a Muzzleloader

- **Percussion Cap Muzzleloader:** When you're ready to fire the muzzleloader safely, place the percussion cap on the nipple. Be sure that your surroundings and your backstop are safe. Then aim and fire.
- **Flintlock Muzzleloader:** When priming a flintlock, pull the hammer to a half-cock position and open the priming pan cover. Check your flint, making sure the setting is tight and properly adjusted. Insert a vent pick or fine wire into the barrel's touch-hole to make sure the opening is clear. With your priming horn, fill the pan about three-fourths full of FFFFg powder. Close the frizzen and pull the hammer to full cock when you're ready to fire the shot safely.
- After firing, place the hammer in the half-cock position and swab the barrel to remove sparks that might be inside.



Hang Fire Situations

Sometimes a muzzleloader will not fire immediately when the trigger is pulled. This is known as "hang fire" and requires great caution because the gun might fire some time after the cap or flint created the initial sparks.

- Keep the gun pointed in a safe direction, preferably down range.
- Don't take it anywhere that it could injure someone or damage property if it fires.
- If a muzzleloader doesn't fire properly, get help from an experienced shooter to unload it using a ball discharger.

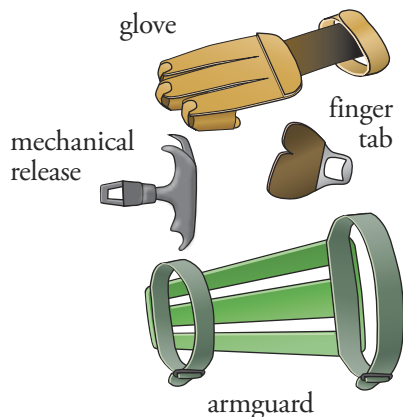


History of the Bow and Arrow

The use of the bow and arrow is recorded as early as 3,000 B.C.

- The Egyptians used bows shorter than a man's height, with arrows two feet long or more.
- Early bows were "C" shaped. When shooting these bows, the archer would pull the string with a ring held around the thumb. The early longbow was 5-6 feet in length and was usually made of yew. The legend of Robin Hood romanticized the longbow.
- Native American Indians were America's first bowhunters. European settlers brought their skills to America and contributed to the development of bows and arrows in the U.S.
- In 1879, the National Archery Association was founded. It initiated the first U.S.-sponsored tournament in 1879.
- Bowhunting did not really take off until the 1950s and 1960s as hunters learned more about this sport and about newer bows that were developed.
- Like other methods of hunting, the bowhunter must first acquire the knowledge and skills necessary to be a safe and responsible hunter.

Accessories



- To protect the three fingers that draw the bowstring, archers wear three-fingered gloves or finger tabs, or use mechanical releases.
- A mechanical release snaps onto the string and is pulled back with the shooting hand. The archer pulls a trigger to release the string.
- An armguard protects the inner part of the bow arm during release as the string snaps back. The armguard protects the bowstring from hitting loose clothing and also helps protect the arm if an arrow breaks during release.

KNOW YOUR BOW AND ARROW

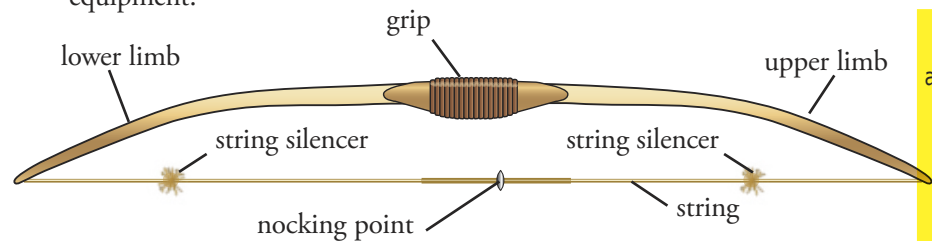
Modern bows can shoot arrows more than 200 yards, at speeds of more than 135 miles per hour. Any bow can be dangerous at any range and should be handled responsibly. However, the bow is a short-range hunting tool. Shots are usually limited to 40 yards or less; and at this range, the arrow penetrates and can even pass through an animal. **Most** shots are taken at 20 yards or less.

Common Bow Types

Proper bow selection and fit are essential to your accuracy and performance when bowhunting.

■ Longbow (Stick Bow)

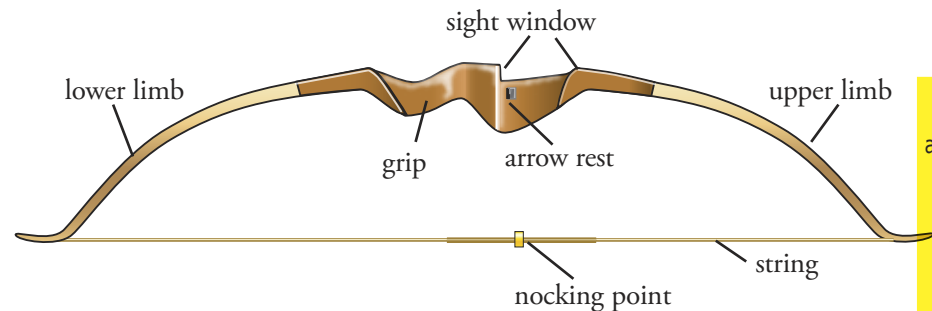
- The "traditional" bow, which has straight limbs that form an arc when strung.
- Used by those interested in traditional shooting with little additional equipment.



modified graphic added labels

■ Recurve Bow

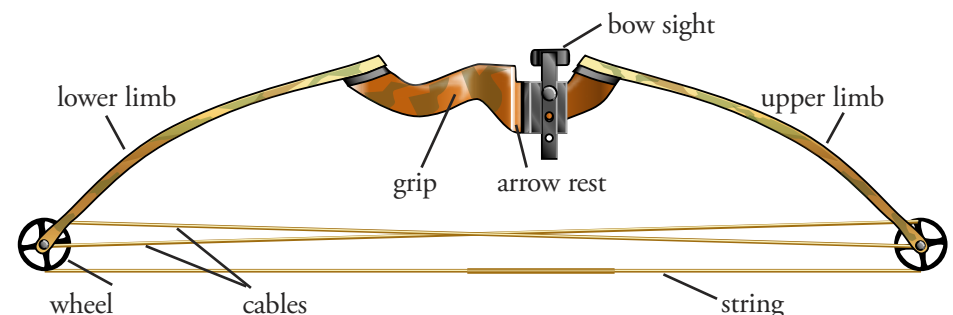
- Much like the longbow, but the limbs curve back away from the belly of the bow, which can provide more power in a shorter bow than the longbow.
- A popular choice because it's smooth and quiet.



modified graphic added labels

■ Compound Bow

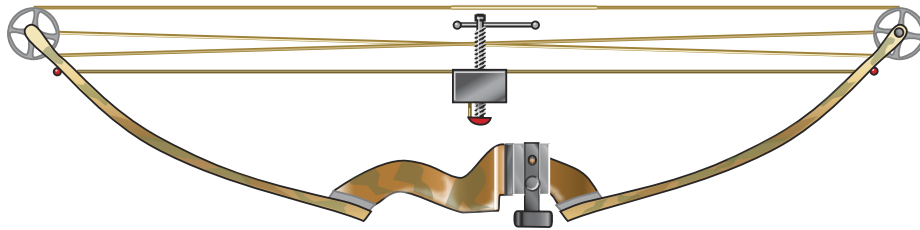
- The most popular bow for both hunting and target shooting.
- A bow with many styles, but they work basically the same; wheels and cables attached to the limbs make it easier to hold at full draw (pulled completely back) and able to propel an arrow faster than either a longbow or recurve bow.



Stringing a Bow

The safe and easy way to string a recurve bow or longbow is to use a bowstringer. The push-pull or step-through method can be hazardous to yourself or your bow.

- A bowstringer is simply a strong cord with a loop or pocket at each end that fits over the limb tip of recurve bows and some longbows. By standing on the loose middle of the cord after it's attached to the tips, the limbs can be flexed as the handle is pulled. This allows the bowstring to be slipped safely into place.
- To replace compound bow strings, you must use a bow press or have double tears at the end of each cable end. Double tears allow you to change strings by stepping on the string being replaced first and on the new string second. A bow press is used to place and hold tension on the limbs, allowing the strings to be changed. Inexperienced bowhunters should have a qualified dealer or individual replace the string on a compound bow.

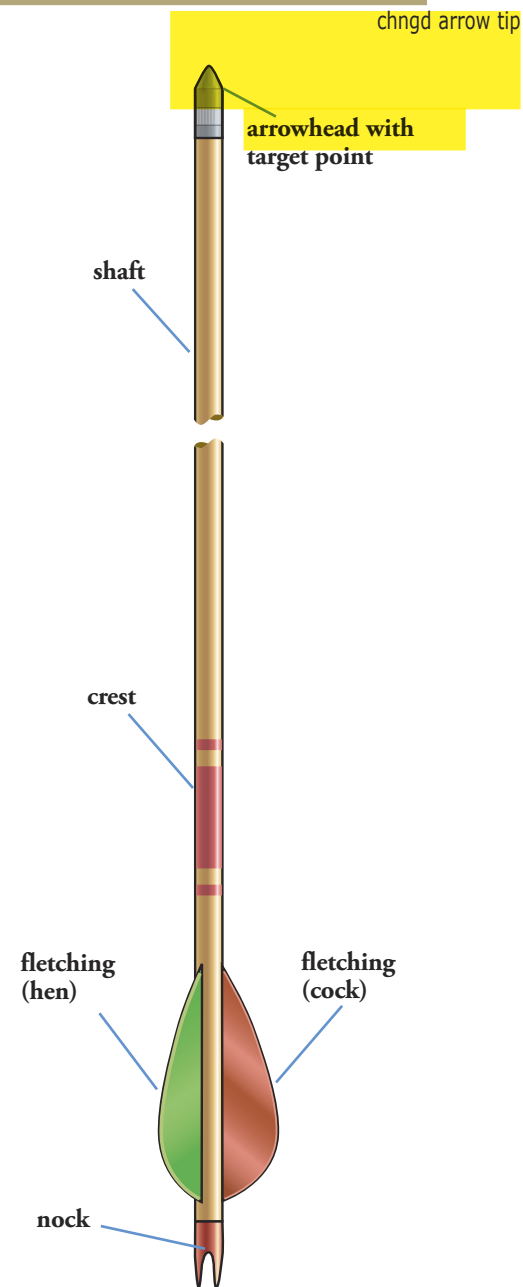


Parts of an Arrow

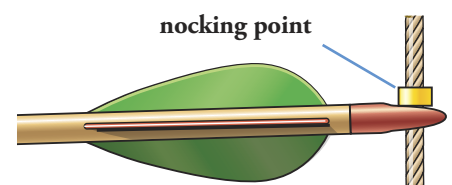
Arrows have four parts:

- **Shaft:** The long spine of the arrow. Modern arrow shafts are made of wood, fiberglass, aluminum, or carbon. The arrow, regardless of shaft material, must have the correct stiffness to match the bow. As an arrow is released, the shaft bends before straightening in flight. Incorrect stiffness will cause the arrow to fly erratically and inaccurately.
- **Fletching:** The plastic vanes or feathers on an arrow. Fletching creates wind drag and also can cause the arrow to spin similar to a rifle bullet, providing stability and accuracy in flight. Fletching is made up of three or more vanes or feathers. One of the feathers will be a different color and is called the “cock” feather. The remaining feathers are referred to as the “hen” feathers.
- **Arrowhead:** The point of the arrow. Many different kinds of arrow points are available, each with a different purpose and advantage.
- **Nock:** A slotted plastic tip located on the rear end of the arrow that snaps onto the string and holds the arrow in position. There is a certain point on the bowstring, called the “nocking point,” where arrows are nocked. Fine tuning of this location, by moving it up or down the bowstring, is usually required.

Arrow Parts



Nocking Point



Types of Arrowheads

modified
graphic

Bullet Point



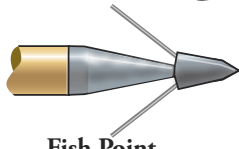
Blunt Point



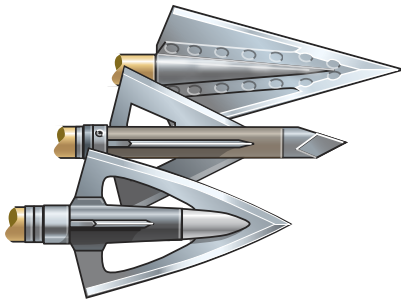
Field Point



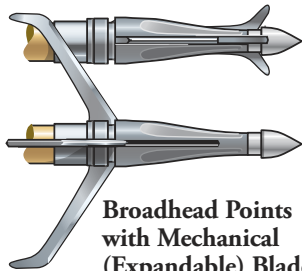
JUDO® Point



Fish Point



Broadhead Points

Broadhead Points
with Mechanical
(Expandable) Blades

Common Types of Arrowheads

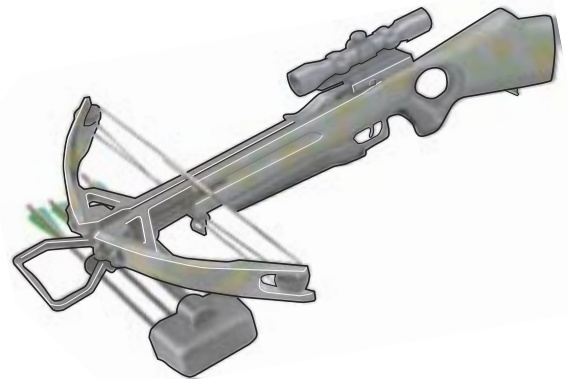
- **Bullet Point:** Steel point used for target shooting and small game hunting.
- **Blunt Point:** Used for small game hunting and some types of target shooting; made of steel, hard rubber, or plastic.
- **Field Point:** Steel point used for target shooting and small game hunting.
- **JUDO® Point:** Designed with spring arms attached to catch in grass and leaves, preventing arrow loss; used for “stump” shooting and small game hunting.
- **Fish Point:** Long, barbed or spring-loaded arrowhead that spears fish and secures them until landed with an attached line.
- **Broadhead:** Used primarily for big game hunting. The number of steel blades it contains may vary. The only arrowhead that may be used for big game hunting is the broadhead. It must be solidly built and always razor-sharp. Many states have laws governing the minimum diameter and number of cutting edges of the broadhead used to hunt big game.
- **Mechanical (Expandable) Blade Broadhead:** Blades are retracted close to the ferrule before the shot. Upon impact, the blades expand to expose the cutting edges. These are recommended for use only with bows rated 50 pounds or more because most require additional energy to open upon penetration.

new
text

KNOW YOUR CROSSBOW

A crossbow is a bow with a rifle-like stock that shoots bolts or short arrows. Safe use of a crossbow requires following the safety rules for both firearms and bows.

- Many states have laws which limit the use of crossbows.
- Never travel with a loaded, cocked crossbow.
- Like conventional bows, the crossbow is limited to short-range shooting.

added
illus-
tration
of
mechan-
ical
broad-
heads*Remember...*

Broadheads kill by cutting blood vessels, unlike the high energy shock of bullets. Hemorrhage is typically the result. A responsible bowhunter will use razor-sharp broadheads and only take shots that allow a clear, close shot to the vital area of the game animal.

BOWHUNTING SAFETY AND SKILLS

Many states require a bowhunter education course to hunt legally with archery equipment. Even if not required, taking a course will give you an excellent start to becoming a safe and skillful bowhunter.

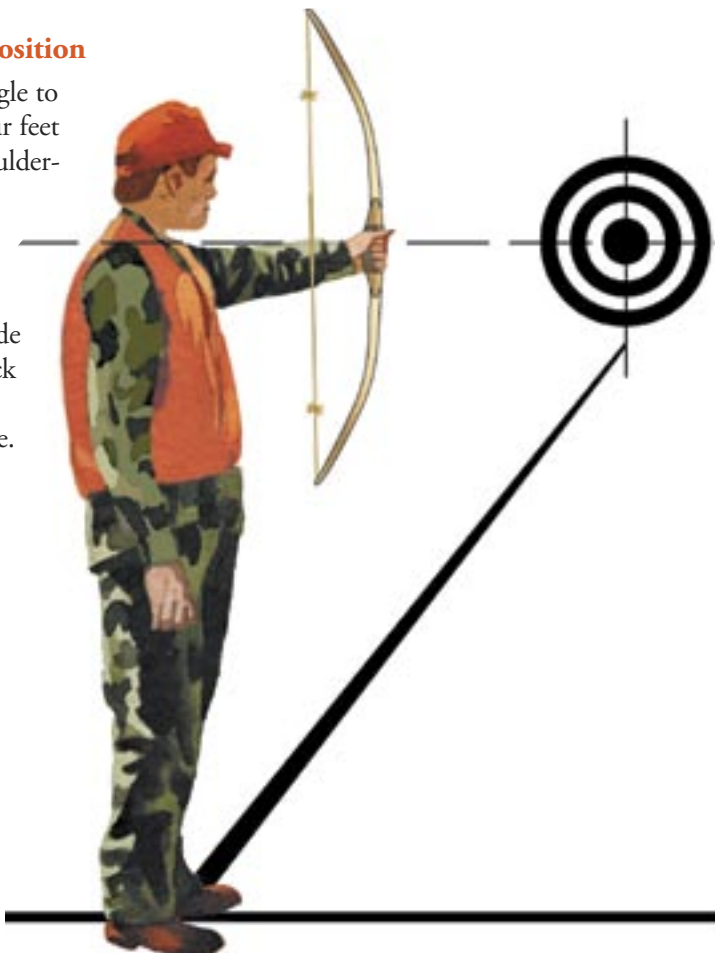
Bow Shooting Safety

An arrow is as deadly as a bullet, so the basic safety rules that govern firearm shooting also apply to archery. Although shooting accidents are rare among bowhunters, they do happen. Archers must obey a few common safety rules, whether on the range or in the field:

- Release an arrow only when the path to the target and beyond is clear.
- Make sure there's something to stop the arrow if you miss—never shoot over the horizon.
- Avoid shooting an arrow in the general direction of another person. Arrows are easily deflected. A small twig, unseen by you, can cause an arrow to veer dangerously off course.
- Don't shoot straight up. A falling arrow carries enough force to penetrate the human skull.
- Carry arrows in the nocked position only when slowly approaching game—never nock an arrow or draw a bow if someone is in front of you.
- Use a haul line to raise a bow and quiver into a tree stand to avoid serious injury (see page 61 for more on this subject).

Bow Shooting Position

Stand at a right angle to the target with your feet approximately shoulder-width apart. The stance should feel comfortable and balanced. If you prefer, you may slide your front foot back a little, creating a slightly open stance.



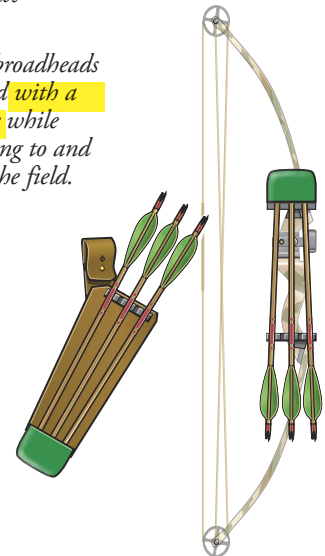
Archery Equipment Safety

Before practicing or hunting, an archer must examine each arrow to make certain there are no cracks or breaks in the shaft and that the nock is in good condition. A cracked or broken nock can be replaced, but a shaft that has cracks or breaks should be discarded.

Never use a cracked arrow. The shaft may shatter on release and be driven into the shooter's wrist or arm. Some common types of damage to look for are:

- Cracks and splinters in wood arrows
- Creases, dents, or cracks in aluminum arrows
- Crushed sidewalls on fiberglass or graphite arrows

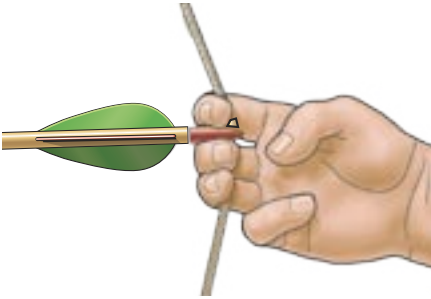
Keep broadheads covered with a quiver while traveling to and from the field.



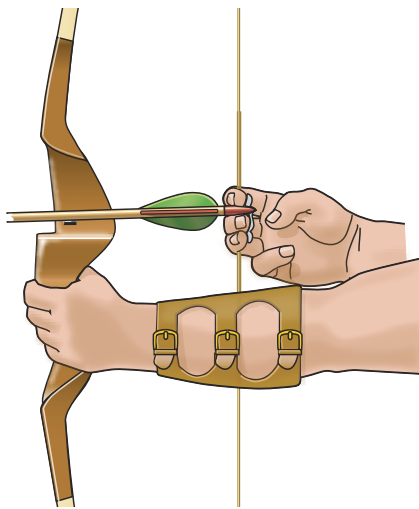
Broadhead Safety

Many archers' injuries come from broadheads. Broadheads must be kept razor-sharp for hunting, which creates a safety problem if they are handled carelessly. To prevent injury:

- Use a special wrench to screw on broadheads. This device covers the blades while a broadhead is being tightened on an arrow. If a wrench isn't used, the slightest slip can cause a serious cut. When sharpening broadheads, always stroke the blade away from hands and body.
- Keep broadheads covered with a quiver while traveling to and from the field. Many arrow injuries occur while loading or unloading equipment in vehicles.
- While dressing bow-killed game, remember that the broadhead may remain in the animal. Use great caution until all parts of the broadhead have been found.



Align the slot in the nock with the string, while making sure that the cock feather points to the left.



If you are right-handed, raise the bow as you pull back the string with the three drawing fingers of your right hand. Simultaneously extend your left arm.

Safety TIP

A bow should never be “dry fired.” Releasing a string without an arrow nocked transfers energy back to the limbs instead of the arrow. The bow can fly apart, injuring anyone nearby.

Nocking an Arrow

- A nocked arrow should be positioned about a quarter inch above the arrow rest on the bow handle. On most bows, a small brass band called a “nocking point” is crimped onto the bowstring to mark the correct position.
- To nock the arrow:
 - Grasp the arrow between the thumb and index finger of the right hand (if you’re a right-handed shooter).
 - With your left hand, hold the bow parallel to the ground about waist high, string toward the body.
 - Lay the arrow shaft on the bow’s arrow rest.
 - Align the slot in the nock with the string, while making sure that the cock feather points up (while the bow is parallel to the ground).
 - Pull the arrow back until the string snaps into the slot.

Drawing and Anchoring the Bow

- To draw the bow:
 - Grip the bow handle firmly in the left hand, but don’t squeeze.
 - With your bow arm straight, raise the bow to a point that your arm is parallel to the ground, while simultaneously drawing the string back to your “anchor point” with your shooting hand. The anchor point may be the corner of your mouth, your cheekbone, or your chin.
- Practice will help you determine your best anchor point—one that’s both comfortable and provides the most accurate shooting. Your fingers should touch the same anchor point each time you draw the bow.

highlighted text above changed to be consistent with Today's Bowhunter

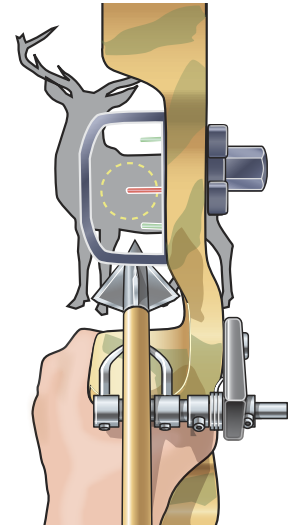


Aiming the Bow

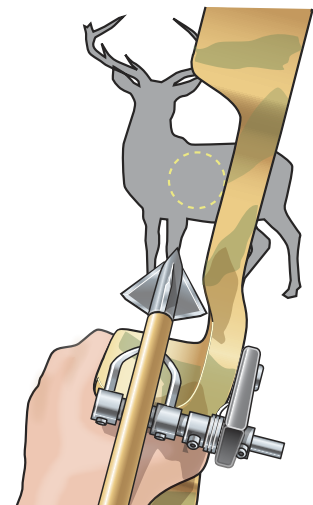
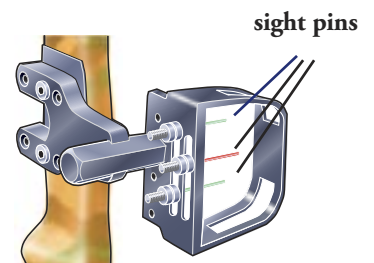
- There are two main methods for aiming bows—bowsights and instinctive aiming.
- **Bowsights** work best when the distance to the target is known. For instance, when hunting from a tree stand or blind, you can measure the distance to the area where you expect the game to appear. Then it's a matter of lining up the appropriate sight pin on the target. In hunting situations where it's hard to know the exact distance to the target, bowsights may not work well. The key to using bowsights is to practice judging distances.
- **Instinctive aiming** is more versatile than the bowsight method. You simply look at the intended target with both eyes open and release. You adjust the aim for different distances by instinct developed with practice. Instinctive aiming takes longer to perfect than the bowsight method, but it eliminates much of the guesswork from shooting under some hunting conditions.

Holding and Releasing the Bow

- Allow your fingers to slip quickly away from the string. This gives the arrow a straight, stable flight.
- Keep your bow arm pointed directly at the target after the release. If the bow is jerked on release, the arrow will fly off target.
- Follow through by leaving your drawing hand at the anchor point well after the string is released.



With bowsights, you line up the appropriate sight pin on the target.



With instinctive aiming, you simply look at the intended target with both eyes open and release.

Objectives

You should be able to...

- State three practices for handling and storing firearms in the home.
- Name the four main causes of hunting incidents.
- Demonstrate the four primary rules of firearm safety.
- Demonstrate six field carries for a rifle or shotgun.
- Demonstrate proper field carries while walking two or three abreast and while walking two or three in single file.
- Demonstrate the safe method for crossing an obstacle if hunting alone and if hunting with a partner.
- Explain how to safely check to see that the barrel of a firearm is free of obstructions.
- List the steps to load and unload a firearm safely.
- Explain how to safely transport firearms in vehicles and in boats.
- Demonstrate proper spacing between hunters and the safe zone-of-fire when hunting in a group.
- Explain why self-control, target identification, and accuracy are critical for hunting safety.
- State five functions needed for hunting that are impaired if the hunter consumes alcohol or drugs.
- List advantages and disadvantages of hunting from an elevated stand.
- Name the accessory you should wear at all times when climbing a tree and when on a tree stand.
- Demonstrate how to haul a firearm into an elevated stand safely.
- Demonstrate a safe position and the zone-of-fire when hunting with a partner in a boat.
- Name the accessory you should wear at all times when hunting from a boat.
- Demonstrate what to do to help retain body heat if you are stranded in chilly water.
- List seven rules for safe and ethical operation when hunting with an all-terrain vehicle.

The Four Primary Rules of Firearm Safety

- *Point the muzzle in a safe direction.*
- *Treat every firearm with the respect due a loaded gun.*
- *Be sure of the target and what is in front of it and beyond it.*
- *Keep your finger outside the trigger guard until ready to shoot.*

Remember...

- *The most common hunting incidents result from hunter judgment mistakes.*
- *Eighty percent of all firearm incidents occur within 10 yards of the muzzle.*

WHY FIREARM SAFETY IS IMPORTANT

Whenever firearms are being handled, an accident can occur if the firearm is not handled responsibly. Preventing hunting accidents depends on knowing and understanding firearms, and handling them skillfully and safely. Responsible hunters practice safe habits until they become second nature.

Firearm Safety in the Home

- Statistics show that more than half of the fatal firearm incidents reported each year occur in the home. Since almost all incidents are caused by carelessness and lack of knowledge, it's the hunter's duty to help prevent firearm mishaps in the home.
- Most importantly, lock guns away where children can't reach them, and store ammunition in a separate location. Check to see that a firearm is unloaded before allowing it in any building or living area.
- Practice these safety rules if handling a firearm in the home:
 - Immediately point the muzzle in a safe direction when you pick up a firearm.
 - Keep your finger off the trigger.
 - Always check to see that the chamber and the magazine are empty.
- If a gun is taken from storage to show friends, be sure they understand safe gun handling rules.

Hunting Incidents

- From a law enforcement perspective, a hunting incident occurs when a hunter directly or indirectly causes personal injury or death while using a firearm or bow.
- More broadly defined, a hunting incident is any unplanned, uncontrolled action that occurs while using a sporting arm. It can include near misses.
- Being responsible in order to prevent hunting incidents is your first priority.

Four Main Causes of Hunting Incidents

- **Hunter Judgment Mistakes**, such as mistaking another person for game or not checking the foreground or background before firing
- **Safety Rule Violations**, including pointing the muzzle in an unsafe direction and ignoring proper procedures for crossing a fence, obstacle, or difficult terrain
- **Lack of Control and Practice**, which can lead to accidental discharges and stray shots
- **Mechanical Failure**, such as an obstructed barrel or improper ammunition



Be sure of the target and what is in front of it and beyond it. If you cannot see what lies beyond the target, do not take the shot.

Using Firearms at the Shooting Range

A successful hunt begins with target practice at the shooting range.

Many of the rules that govern safe firearm handling in the field apply to the shooting range. But a shooting range has some additional requirements:

- Read all range rules that apply to the type of shooting you will do that day.
- If there is a range master, be sure to follow his or her instructions while shooting.
- When not shooting, unload your firearm and leave it on the range line or bench until you're given further instructions.
- Don't handle your firearm while other shooters are down range. Step away from the firing line or bench until the range is clear and the range master instructs you to approach the line or bench.
- If no range master is present, all shooters must decide on safety commands beforehand so that it's clear when someone intends to go down range.
- Anytime a person is beyond the firing line or down range, unload your firearm and step away from the line until the other person returns.
- Under no circumstances should you shoot a firearm when someone is down range or past the firing line.
- Always wear hearing and eye protection, even if you're watching others shoot.
- Respond immediately to anyone calling for a "cease fire."

SAFELY CARRYING FIREARMS IN THE FIELD

There are several ways to carry a gun safely and still have it ready for quick action. Three rules apply to all carrying methods:

- Muzzle pointed in a safe direction and under control
- Safety “on” until immediately before you’re ready to shoot
- Finger outside the trigger guard



Trail Carry

Sling Carry



Elbow or Side Carry



Proper Field Carries

■ Trail Carry

Leaves a hand free for balance, but don't use it when you're behind someone. Not recommended when walking in snow or brush—debris can get in the barrel.

■ Sling Carry

Easy carry for long treks through open country. Keep a hand on the sling when walking so that it doesn't slide off your shoulder if you trip. Not recommended for thick brush because the gun could be knocked from your shoulder.

■ Elbow or Side Carry

Comfortable, but it has the least muzzle control. It also can snag in brushy terrain. Use it when no one is in front of you.

■ Two-Handed or "Ready" Carry

Provides the best control, particularly in thick brush or weeds, or when you need to fire quickly.

■ Cradle Carry

Comfortable and secure; reduces arm fatigue.

■ Shoulder Carry

Good choice in waist-high brush. Don't use it if someone is behind you.

Shoulder Carry



Cradle Carry



Two-Handed or "Ready" Carry





Checking for Obstructions

Occasionally you may trip or stumble in the field, accidentally dipping the barrel into the ground or snow. Immediately check for an obstruction:

- Point the muzzle in a safe direction
- Open the action, unload the firearm, and remove the bolt (if applicable)
- Check for debris in the barrel
- Remove the obstruction with a portable cable-type cleaning rod
- Recheck the barrel
- Reload and close the action

Selecting the Right Carry When Hunting with Others

Carry selection is based primarily on muzzle control and terrain.



- If three hunters are walking side by side, the ones at the sides may carry their guns pointing either to the side away from their party or to the front. The one in the center should keep the gun pointing to the front or up.

- If three hunters are walking single file, the one in the lead should have the gun pointed ahead but never over the shoulder. The one in the middle must have the gun pointed to the side. The hunter in the rear may point the gun to either side or the rear.



- When facing another hunter, any carry is safe except the trail carry or forward-facing elbow or side carry.
- Remember that the same rules for safe carry apply when your hunting companion is a dog.

Crossing Obstacles

- Always unload guns before crossing fences or other obstacles or before negotiating rough terrain.
- Cross wire fences close to a fence post to prevent damage to the fence.
- After unloading it, place the gun on the other side of the fence or obstacle to be crossed, with the muzzle pointed away from you and your crossing point. Then cross the fence and retrieve your gun.



Remember...

In addition to gun handling, several other factors affect your safety during the hunt:

- Weather, especially the sun's glare
- Pests, such as fire ants, snakes, and bees
- Your emotional state
- Your stamina, especially when hunts are physically demanding



- If two people are crossing, one person gives the other person both guns, crosses first, and then receives the unloaded guns from the other hunter.
- Pull a gun toward you by the butt—never by the muzzle.

Remember...

Removal of ammunition from the magazine or removal of the magazine from the firearm does not mean the firearm is unloaded!

SAFELY LOADING AND UNLOADING FIREARMS

Even something as simple as loading a firearm can result in tragedy if it isn't done properly. Here's how to do it safely:

■ Loading

- Point the muzzle in a safe direction.
- Open the action; make sure the barrel is unobstructed.
- Put the safety on.
- Load the ammunition.
- Close the action.



■ Unloading

- Point the muzzle in a safe direction.
- Make sure the safety is on.
- Keep your finger outside the trigger guard.
- Open the action.
- Remove the ammunition; eject cartridges or shells if it's the only way to remove them—use extra care with lever action firearms.
- Count shells or cartridges to make sure the gun is empty.
- Check the chamber to make sure it's clear.

SAFELY TRANSPORTING FIREARMS

Transporting firearms involves both legal and safe practices. In addition to federal laws, there are regulations that vary from state to state.

General Rules

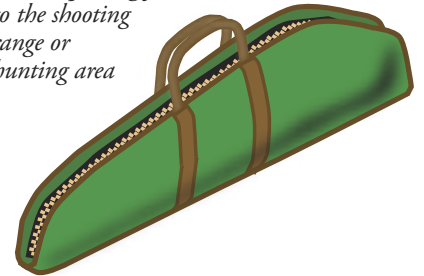
- Always unload and case firearms before transporting them. In many states, this may be the law. The action should be open or the gun broken down, whichever makes it safest if it's mishandled.
- Firearms should not be displayed in window gun racks because the display may provoke anti-hunter sentiment. It's also an invitation to thieves.
- Lean a firearm against a secure rest only. A vehicle does not provide a secure resting place. A gun that falls over might accidentally discharge or be damaged.



Four Types of Gun Cases

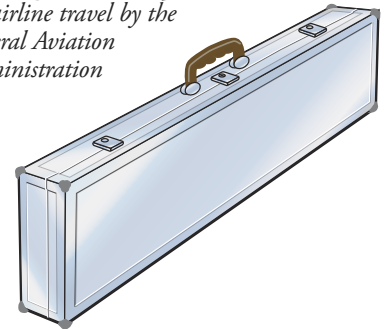
Padded soft-sided gun case

Easily stored in most vehicles; good for transporting firearms to the shooting range or hunting area



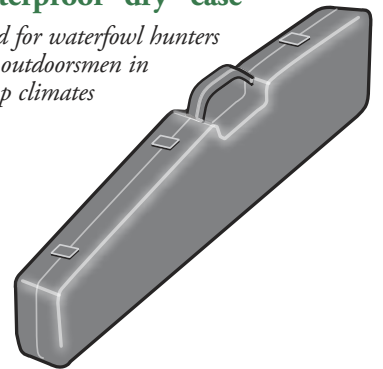
Lockable hard-sided gun case

Best for transporting firearms in vehicles over rough terrain; required for airline travel by the Federal Aviation Administration



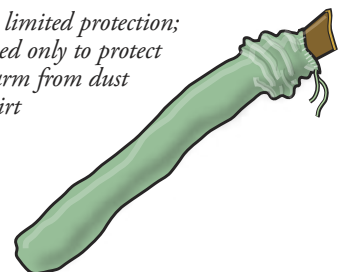
Waterproof "dry" case

Good for waterfowl hunters and outdoorsmen in damp climates



Gun sock

Offers limited protection; designed only to protect a firearm from dust and dirt



Safety TIP

A hunter's zone-of-fire changes with every step. It's important to remain alert and aware of your companions' locations at all times.



Only one hunter should aim at the target. Also, hunters should only shoot if there is an adequate backstop. Don't shoot at a "skylined" animal.

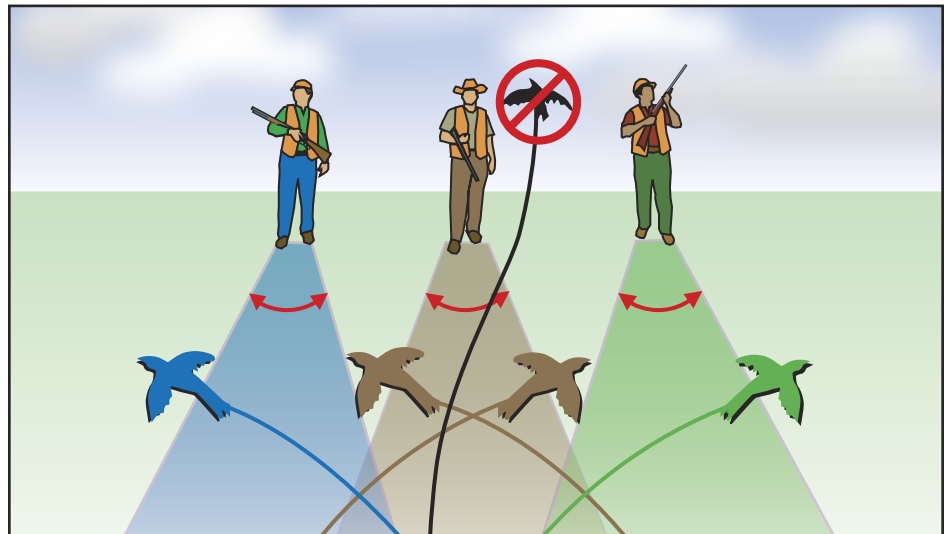
Safety TIP

When hunting in a group, hunters should shoot only at game in front of them.

SAFE ZONE-OF-FIRE

The area in which a hunter may shoot safely is referred to as a zone-of-fire. Before setting off in a group, hunters should agree on the zone-of-fire each person will cover. A zone-of-fire depends on many factors, including the hunter's shooting ability, the game being hunted, the hunting environment, and the hunting strategy being used. A hunter's zone-of-fire changes with every step. This is particularly true of groups hunting birds, rabbits, or other small game.

- For safety purposes, it's best to have no more than three hunters in a group. For new hunters, two is a safer number until they become familiar with maintaining a proper zone-of-fire.
- Hunters should be spaced 25 to 40 yards apart and always in sight of one another. Each hunter has a zone-of-fire approximately 45 degrees in front, or from 10:30 to 1:30 on a clock face. (Some states require an adult to be immediately beside a youth hunter. In this case, the adult should be a supervisor only—not a hunter.)
- Another way to visualize 45 degrees is to look at a spot directly in front of you. Stretch your arms straight out from your sides. Make a fist with your thumbs held straight up. Gradually move your arms toward the front until your thumbs are clearly in focus without moving your eyes. This will give you your outer boundaries.



- If three hunters are walking side by side hunting pheasants, the hunter in the center will shoot at birds flushed in the middle, which fly straight away. The other hunters will shoot at birds flying toward their end of the line.
- If a bird turns and flies back across the line of hunters, it's best if all three hold their swings and do not fire. The same is true of a rabbit scurrying back between the hunters.
- No hunter, especially when swinging on game, should allow his or her gun to point at a person. Better to pass up a shot than risk injuring someone or damaging property.
- Everyone hunting in these situations should wear daylight fluorescent orange whether it's required by law or not.

OTHER SAFETY CONSIDERATIONS

Self-Control and Target Identification

- Some hunters may become overly anxious or excited on a hunt, which can lead to careless behavior. They may fire at sounds, colors, movements, or unidentified shapes, or simply shoot too quickly. In the excitement after hitting their target, they may swing a loaded firearm toward their companions or run with the safety off toward a downed animal.
- Self-control is an essential aspect of hunter safety. Only shoot when you know the target is legal game and that no people, domestic animals, buildings, or equipment are in the zone-of-fire—remember that bullets can pass through game and continue on for some distance with deadly force.
- Slow, careful shooting is not only safer, but it also produces a higher degree of success.

Accuracy

- Shooting accurately is not only the key to successful hunting, but it's also a safety factor. Some incidents, often deadly ones, have occurred when stray bullets have hit people out of the shooter's sight. Be sure you have a proper backstop before you shoot.
- Accuracy is also essential for achieving a clean kill. No real sportsman wants to wound game and cause needless suffering. You must learn how to hit the vital organs of the game you hunt. Knowing your game, equipment, and skill level will tell you when you're in position to make a clean kill.

Alcohol and Drugs

- Consuming alcohol before or during the hunt increases the risk of incidents because it impairs several functions:
 - Coordination
 - Hearing
 - Vision
 - Communication
 - Judgment
- Drugs can have a similar effect. If you have to take prescription medicine, check with your physician to see if it's safe to take while hunting.

Remember...

A rifle scope should never be used as a binocular.



The best thing you can do for your safety and the safety of others is simple...

Don't drink and hunt!

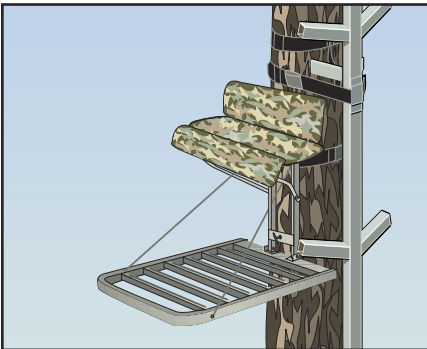
Because you can drink faster than your system can burn the alcohol off, there is an increasing level of alcohol in your blood. This level is referred to as Blood Alcohol Concentration (BAC).

Types of Tree Stands

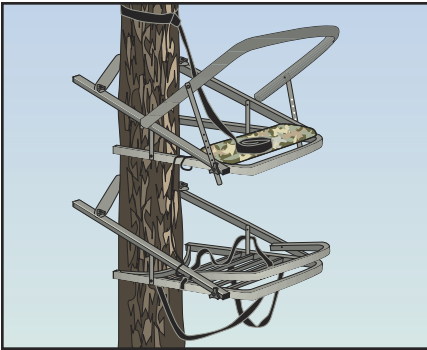


Permanent Tree Stand

modified graphic

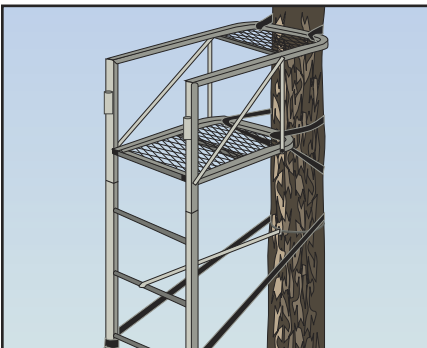


Fixed-Position



Self-Climbing

added straps to graphic



Ladder Stand

HUNTING FROM ELEVATED STANDS

Elevated stands are permanent or temporary stands that place the hunter above ground level. They come as a tree stand placed in or against trees, or as a free-standing structure. They have become increasingly popular in recent years with both firearm and bow hunters. While they offer certain advantages, they also have some drawbacks, including safety issues.

■ Advantages

- Wider field of vision—game is spotted sooner than at ground level
- Earlier detection of game allows time to plan for best shot
- Elevation makes hunter's scent harder to detect and movement less noticeable
- Hunter is more visible to other sportsmen so less likely to be hit by stray bullet
- Good backstop is available because usually shooting at a downward angle

■ Disadvantages

- Risk of injury from falling, particularly in wet or icy weather
- Difficult to carry large, portable stands
- No protection from cold or wind
- Little room for movement

Types of Elevated Stands

■ Permanent Tree Stand

The oldest type of tree stand is the permanent tree stand. It's not recommended because it's difficult to build safely, requires frequent repair due to weather, and damages trees. It also limits a hunter to one site. Permanent tree stands are illegal in some states.

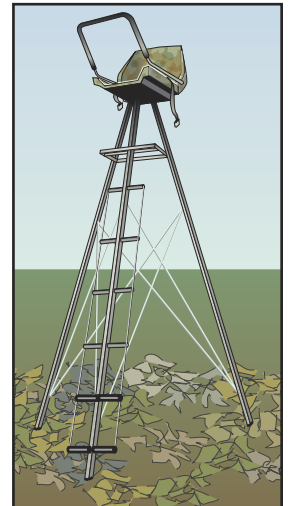
■ Portable Tree Stands

Portable tree stands are safer and more environmentally friendly. Commercially-made stands certified by the Treestand Manufacturers Association (TMA) are best. Homemade stands should be avoided. Portable tree stands come in three basic types:

- **Fixed-Position:** These simple platforms provide about two square feet of space. They must be hauled into place and secured with belts or chains. Because they restrict movement, they can cause fatigue in a short period of time, heightening the risk of falls. This type of stand requires separate climbing aids, such as steps.
- **Self-Climbing:** Best for the athletically inclined, self-climbing platforms allow a hunter to "walk" a stand up a tree. They are not suited for trees with shaggy bark, such as some pines or hickories, or for trees with branches close to the ground.
- **Ladder Stands:** Ladder stands provide a platform 10 to 15 feet above ground. Usable with a wider range of trees than other platforms, they also provide easier, safer access.

■ Tower Stand (Free-Standing)

An alternative to a tree stand is a tower stand. These stands are similar to a ladder tree stand, but are free-standing and can be placed anywhere that has a firm base.



Tower Stand

Safety Harnesses

Safety harnesses must be worn at all times while climbing a tree and when on a tree stand. There are three types of safety harnesses:

- **Simple Belt Harness** wraps around the chest; but in the event of a fall, it can ride up and restrict breathing. If the belt is worn too low, a hunter can be suspended upside down after a fall. This type of harness is not recommended.
- **Chest Harness** is safer than a simple belt because it will hold a hunter upright after a fall. It also can restrict breathing in the event of a fall.
- **Full-Body Harness** is safest because a hunter's weight is distributed evenly. The vest harness is a very effective style of the full-body harness.



Chest Harness



Full-Body Harness



Vest Harness
(Full-Body Harness)

Elevated Stand Location

- Stands can be placed by clearings, cut paths, or anywhere that gives hunters a clear, unobstructed view.
- Never place stands on fence lines or near another landowner's property.

Elevated Stand Safety

- Choose a live tree that's big enough to support you and your equipment.
- Check ladder stands before you climb to make sure they are secure.
- Wear a safety harness when climbing a tree and when in a tree stand.
- Use a haul line to raise an unloaded firearm or bow into the stand.

Hauling a Firearm into a Stand

- Unload the firearm and leave the action open. Lay it on the ground with the muzzle elevated and pointing away from the stand.
- If your firearm has a sling, tie a sturdy hauling line to the sling such that the firearm hangs with the muzzle pointed down. If your rifle doesn't have a sling, you can make one by tying a yard-long piece of cord to the wrist of the stock and to the barrel, just forward of the forearm.
- Slip the end of the haul line through your belt—leave it untied so that it can pull free if you fall. Put on your safety harness, secure yourself to the tree, and climb to your stand.
- After you're in your stand and secure, haul up the firearm and untie the line from your gun. Check for obstructions before you load.

Safety TIP

When hauling a firearm into a stand, make sure it is unloaded. Also, you can avoid getting debris in the barrel by placing a balloon over the muzzle.



Remember...

Most tree stand falls occur when a hunter is climbing up or down a tree. Be sure to wear a safety harness at all times when your feet are off the ground.

Remember...

Don't press your luck in cold weather. At the first sign of a storm, head for shore.

Types of Personal Flotation Devices

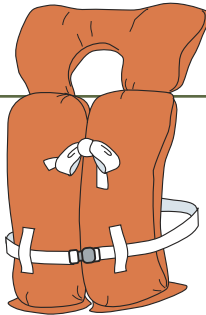
Type I

*Off-Shore
Life Jacket*



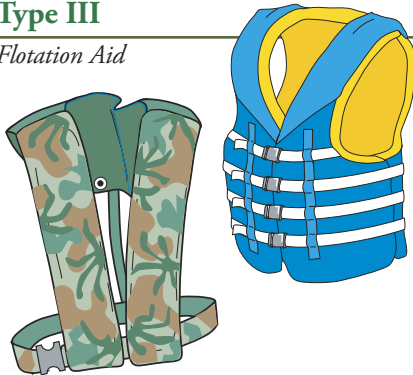
Type II

*Near-Shore
Buoyant Vest*



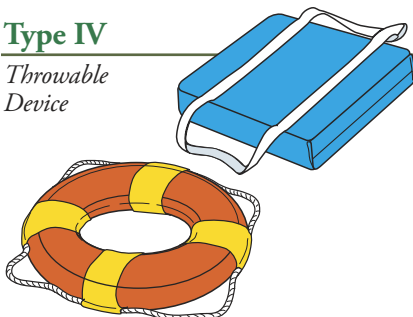
Type III

Flotation Aid



Type IV

*Throwable
Device*



HUNTING WITH BOATS

Hunters often use boats in difficult conditions, such as wind, cold, and snow. Special care must be exercised to ensure a safe trip.

Trip Preparation

- Leave family and friends a float plan, detailing where you're going and when you plan to return.
- Be sure the boat is large enough to carry you and your gear safely.
- Load gear low in the boat, and distribute the weight evenly.
- Have a personal flotation device (life jacket) on board for each passenger to wear.
- Have throwable personal flotation devices on board in case someone falls overboard.
- Stow required visual distress signals.
- Check an up-to-date weather forecast before heading out.
- Cancel your trip if wind and water conditions aren't safe.

Transporting Firearms in a Boat

- Transport firearms with the action open, unloaded, and cased whenever possible.
- Before boarding the boat, place the unloaded firearm in the boat, muzzle first.
- When hunting with others, one person settles into the boat first and then receives the firearms from another. Repeat the procedure when unloading.

Zone-of-Fire in a Boat

When duck hunting, the back-to-back position is the safest, with the zone-of-fire confined to a 180-degree area in front of each hunter.



made
life-
vests
camo

Surviving Water Emergencies

- Always wear a U.S. Coast Guard–approved personal flotation device (life jacket) while you're in the boat. Life jackets will not only keep you afloat, but they'll also help you keep warm.
- If you get caught in a storm and your boat swamps or capsizes, stay with the boat. Most small boats will float even when upside down or filled with water. Signal passing boats with a bright cloth, or raise an oar if one is available.
- Placing an oar under your back and shoulders and another under your legs can help you float. If decoys are in reach, stuff them inside your jacket.
- Chest waders and hip boots also will help you stay afloat.
 - If in chest waders, trap air in the waders by bending your knees and raising your feet. Lie back in the water.
 - If in hip boots, trap air in the boots by bending your knees. Lie on your stomach.

Hypothermia

- When you fall into chilly water, there's a risk of hypothermia—your body temperature can drop to a fatal level quickly. To help you retain as much heat as possible, assume the HELP (Heat Escape Lessening Posture) position: pull your knees to your chest and keep your elbows close to your sides.
- If two or more people are in the water, using the huddle system will help retain body heat and increase survival time by as much as 50 percent. Place your arms around your partners and link legs.
- Read more about symptoms of and treating hypothermia on pages 76-77.

Safety TIP

If you fall into the cold water, leave your clothes on; they'll help retain body heat.

Recognizing Advanced Stages of Hypothermia

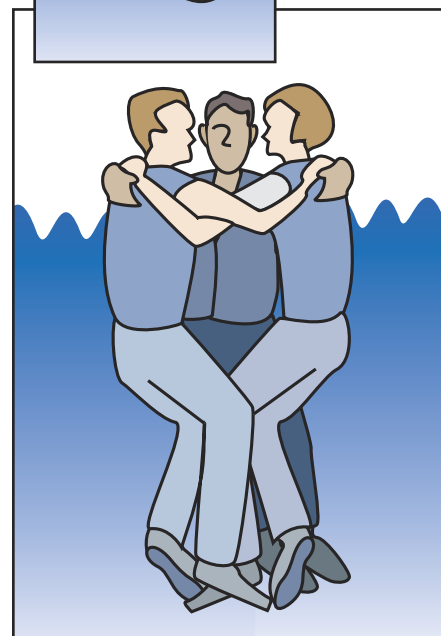
When the victim has these symptoms, dry clothing, heat, and medical attention are required immediately:

- Bluish-white appearance
- Weak heartbeat
- Shallow breathing
- Rigid body muscles
- May be unconscious



HELP

Heat Escape Lessening Posture



Huddle

Retains body heat and increases survival time

Remember...

Shooting from vehicles is unsafe, unethical, and in many instances illegal.

Considerations When Hunting with All-Terrain Vehicles

- *In many states it is illegal to hunt from any motorized vehicle, including ATVs; this includes molesting, stirring up, or driving any game animals or game birds with a motorized vehicle.*
- *It is illegal in some states to operate an ATV off the trail, or there may be trails specifically closed to ATV use.*
- *In many states, it is prohibited to operate an ATV off roads or trails in a manner that damages or disturbs the land, wildlife, or vegetation.*
- *Some states require that ATVs be equipped with approved and operating spark-arresting mufflers and comply with sound regulations.*

HUNTING WITH ALL-TERRAIN VEHICLES

All-Terrain Vehicles or ATVs are special-purpose vehicles that require careful, responsible handling and good judgment.

- They're useful for traveling into back country, but they can damage the environment if used recklessly. They also require training and practice to handle them safely in rough terrain.
- Studies show that the majority of ATV accidents occur when the rider unexpectedly encounters an obstacle, such as a rock or a ditch. Maintaining a safe speed is critical.



- If you use ATVs to hunt, prepare yourself and your family by attending an approved ATV course.
- Before hunting with ATVs on private land, be sure to get the landowner's permission.
- Always follow the rules for safe and ethical operation:
 - Wear a helmet.
 - Carry firearms unloaded and cased, or on a proper gun rack.
 - When using the plastic scabbard mounted on an ATV, clear the inside of the scabbard of debris and check your firearm's muzzle for obstructions.
 - Stay on the main roads and trails.
 - Pick your route carefully to minimize terrain damage.
 - Don't drive over crops or planted fields.
 - Don't shoot from an ATV.
 - Use ATVs only to get to the hunting area or to haul an animal from the woods.

Objectives You should be able to...

- Give five reasons why we have hunting laws.
- Identify opportunities to go hunting on public and private lands.
- State how the “father of wildlife management” defined ethical behavior.
- Describe how responsible and ethical hunters show respect for natural resources.
- Describe how responsible and ethical hunters show respect for other hunters.
- Describe how responsible and ethical hunters show respect for landowners.
- Describe how responsible and ethical hunters show respect for non-hunters.
- List and describe the five stages of hunter development.
- Give three examples of what you can do to be involved in making hunting a respected sport.

WHY DO WE HAVE HUNTING LAWS?

During the 19th century, many game animals were hunted nearly into extinction. The thundering herds of buffalo that once roamed the plains were reduced to about 800 head. The beaver was almost wiped out. Once plentiful elk, deer, and pronghorn had been reduced to a fraction of their original number.

Game Conservation

To conserve wildlife for future generations to enjoy, wildlife management laws were passed. These laws allow game to flourish by:

- Establishing hunting seasons that limit harvesting and avoid nesting and mating seasons
- Limiting hunting methods and equipment
- Setting “bag” limits on the number of animals that can be taken
- Establishing check stations and game tag requirements to enforce the laws

Safety, Opportunity, and Funding

In addition to ensuring the availability of game for future generations, hunting laws:

- Establish safety guidelines for hunting that protect both hunters and non-hunters
- Offer equal opportunity for all hunters, whether they use modern firearms, muzzleloaders, or bows
- Ensure adequate funding for wildlife programs by collecting license fees

Fair Chase

- Hunting laws also define the rules of fair chase. The concept began in the Middle Ages when hunters increased the challenge of sport hunting by setting rules that limited how they took game.
- More recently, fair chase rules were developed to stem public criticism of hunters. One of the earliest models was the “Fair Chase Principle” established in the late 1800s by the Boone and Crockett Club, which was founded by Theodore Roosevelt. Those who violated club rules were expelled.
- The rules were later expanded, banning the use of vehicles, airplanes, and radios; electronic calling; or shooting in a fenced enclosure. Many states have made those rules into law.

Know the Law

Ignorance of hunting laws is not a valid excuse for violating them. It is the hunter's responsibility to review state game laws before the hunting season.



Remember...

A substantial amount of funding for wildlife management comes from the purchase of licenses, which annually raise millions of dollars.

How Hunting Laws Are Passed

In most states, a wildlife management agency sets hunting regulations. These agencies will have regular meetings where the public can voice their concerns and make suggestions. Hunters wishing to propose changes to the regulations should participate in these meetings or join a hunting organization that interacts with the agency.

How Hunters Make a Positive Impact

- Put in countless hours to improve wildlife habitat.
- Help biologists transplant game species, and save other species from extinction.
- Encourage others to practice ethical behavior.

ethics:

Moral principles or values that distinguish between right and wrong; they are unwritten rules that society expects to be followed

How to Ask Landowners for Permission

- Make contact at least a week in advance.
- Wear street clothes—no hunting gear or firearms.
- Don't bring companions—a "crowd" could be intimidating.
- Be polite.
- Thank the owner, whether permission is granted or denied.



Contact the landowner while wearing street clothes and well in advance of when you wish to hunt.

The Hunter's Image Matters

- Responsible hunters welcome laws that enforce sportsmanlike hunting practices because the behavior of irresponsible hunters has caused some people to oppose hunting.
- Nationally, approximately five percent of the population hunts, and roughly the same percentage actively opposes hunting. The rest of the population is predominantly neutral. However, bad behavior by hunters could sway some of the neutral crowd into the anti-hunting camp.

HUNTER ETHICS

- While hunting laws preserve wildlife, **ethics** preserve the hunter's opportunity to hunt. Because ethics generally govern behavior that affects public opinion of hunters, ethical behavior ensures that hunters are welcome and hunting areas stay open.
- Ethics generally cover behavior that has to do with issues of fairness, respect, and responsibility not covered by laws. For instance, it's not illegal to be rude to a landowner when hunting on his or her property or to carelessly fail to close a pasture gate after opening it, but most hunters agree that discourteous and irresponsible behavior is unethical.
- Then there are ethical issues that are just between the hunter and nature. For example, an animal appears beyond a hunter's effective range for a clean kill. Should the hunter take the shot anyway and hope to get lucky? Ethical hunters would say no.

The Hunter's Ethical Code

As Aldo Leopold, the "father of wildlife management," once said, "Ethical behavior is doing the right thing when no one else is watching—even when doing the wrong thing is legal." (See back cover.)

The ethical code hunters use today has been developed by sportsmen over time. Most hunting organizations agree that responsible hunters do the following:

■ Respect Natural Resources:

- Leave the land better than you found it.
- Adhere to fair chase rules.
- Know your capabilities and limitations as a marksman, and stay within your effective range.
- Strive for a quick, clean kill.
- Ensure that meat and usable parts are not wasted.
- Treat both game and non-game animals ethically.
- Abide by game laws and regulations.
- Cooperate with conservation officers.
- Report game violations.

■ Respect Other Hunters:

- Follow safe firearm handling practices, and insist your companions do the same.
- Refrain from interfering with another's hunt.
- Avoid consuming alcohol, which can impair you to the point of endangering others.
- Share your knowledge and skills with others.

■ Respect Landowners:

- Ask landowners for permission to hunt.
- Follow their restrictions on when and where you may hunt.
- Treat livestock and crops as your own.
- Offer to share a part of your harvest with the owner.
- Leave *all* gates the way you found them.
- If you notice something wrong or out of place, notify the landowner immediately.
- Never enter private land that is cultivated or posted, unless you have first obtained permission.



■ Respect Non-Hunters:

- Transport animals discreetly—don't display them.
- Keep firearms out of sight.
- Refrain from taking graphic photographs of the kill and from vividly describing the kill while within earshot of non-hunters.
- Maintain a presentable appearance while on the street—no bloody or dirty clothing.

Personal Choice

- As in every human endeavor, there are gray areas of ethical behavior that come down to a matter of personal choice.
- Examples of gray areas of ethical behavior are:
 - Baiting deer with corn or protein pellets
 - Shooting birds on the ground, on the water, or in trees
 - Shooting from a vehicle or boat within private boundaries or on private waters

Landowner Complaints about Hunters

- *Don't get permission to hunt*
- *Don't tell the landowners when they arrive at or leave the property*
- *Make too much noise*
- *Leave litter behind*
- *Carry loaded firearms in vehicles*
- *Drive off the ranch roads*
- *Don't leave gates as they were (open or shut) when the hunter arrived*
- *Shoot too close to neighbors or livestock*
- *Leave fires unattended*
- *Violate game laws*
- *Drink alcohol to excess*

Remember...

Hunting is a privilege and can be taken away if hunters fail to act responsibly.

How to Behave if Confronted by Anti-Hunter Protesters

- *Remain calm and polite, and do not engage in arguments—never lose your temper.*
- *Never touch an anti-hunter or use any physical force, and especially **never threaten an anti-hunter with your firearm.***
- *Report hunter harassment to law enforcement authorities. If possible, record the vehicle license number of the harassers.*

Hunting Opportunities on Public Lands

All states have federal- or state-owned public lands that are available for hunting. Public lands may have special regulations that regulate hunting on these properties and may require special permits. Be sure to check with your state's wildlife management agency and obtain maps before you go out.

Be aware that national parks are all closed to hunting. Public lands that may be open for hunting are:

- *State parks and forests*
- *State-owned wildlife management areas*
- *National forests*
- *National Wildlife Refuge properties*
- *Bureau of Land Management properties*
- *Bureau of Reclamation properties*

THE FIVE STAGES OF HUNTER DEVELOPMENT

It should be the goal of every responsible hunter to become a true sportsman. As a hunter gains experience and skill, studies have shown that he or she will typically pass through five distinct stages of development. Keep in mind, however, that not everyone passes through all of these stages, nor do they necessarily do it in the same order.

1. Shooting Stage



■ Shooting Stage

The priority is getting off a shot, rather than patiently waiting for a good shot. This eagerness to shoot can lead to bad decisions that endanger others. A combination of target practice and mentoring helps most hunters move quickly out of this stage.

■ Limiting-Out Stage

Success is determined by bagging the limit. In extreme cases, this need to limit out also can cause hunters to take unsafe shots. Spending time with more mature hunters helps people grow out of this phase.

■ Trophy Stage

The hunter is selective and judges success by quality rather than quantity. Typically, the focus is on big game. Anything that doesn't measure up to the desired trophy is ignored.

2. Limiting-Out Stage



3. Trophy Stage



■ Method Stage

In this stage, the process of hunting becomes the focus. A hunter may still want to limit out but places a higher priority on how it's accomplished.

■ Sportsman Stage

Success is measured by the total experience: the appreciation of the out-of-doors and the animal being hunted, the process of the hunt, and the companionship of other hunters.

4. Method Stage



5. Sportsman Stage



Involvement

- Part of the process of becoming a true, responsible sportsman is becoming involved in efforts to make hunting a respected sport. That includes teaching proper knowledge and skills to others, working with land-owners, and cooperating with wildlife officials.
- It also includes joining conservation organizations dedicated to improving habitat and management efforts. Young hunters can be involved by joining organizations such as 4-H, Boy Scouts, and Girl Scouts, as well as by participating in wildlife projects in their local communities.
- Responsible, ethical behavior and personal involvement are both essential to the survival of hunting. How you behave and how other people see you will determine whether hunting will continue as a sport.

Objectives

You should be able to...

- List and describe four ways to prepare properly for hunting.
- Prepare a sample hunting plan.
- List three conditions that affect a hunter's physical ability to perform safely and responsibly.
- Describe how to dress for hunting in cold weather.
- State why hunters should wear daylight fluorescent orange clothing.
- Demonstrate how to read a topographic map and use a compass.
- List the five primary requirements for survival.
- List the eight basic survival rules.
- Describe three ways to signal for help when lost in the outdoors.
- Give the causes and symptoms of hypothermia, and explain how to prevent and treat hypothermia.
- Give the causes and symptoms of heat exhaustion, and explain how to prevent and treat heat exhaustion.
- Give three examples of why it's important for every hunter to attend first-aid and CPR training courses.
- Demonstrate how to stop bleeding.
- Explain what to do if someone breaks a bone.
- Describe how to recognize first-, second-, and third-degree burns, and how to treat them.
- Explain what to do immediately if a person suffers a chest wound.

Hunting Plan

Before you depart, leave a hunting plan with a family member or friend. A hunting plan tells where and with whom you intend to hunt, and when you expect to return. It also should contain specific directions on your route to your destination and any alternate destination you may have if bad weather changes your plans.

HUNTING PLAN

Complete this form before departing on a hunt, and leave it with a reliable person who can be depended upon to notify the authorities in case you do not return as scheduled. A word of caution: In case you are delayed and it is not an emergency, inform those with your hunting plan of your delay in order to avoid an unnecessary search!

1. Name of person filing this plan: _____ Age: _____ Address: _____
Telephone #: (____) _____

2. Names of others on hunt: _____ Telephone #: (____) _____
_____ Telephone #: (____) _____
_____ Telephone #: (____) _____
_____ Telephone #: (____) _____
_____ Telephone #: (____) _____
_____ Call sign: _____
_____ Going to: _____

3. Radio ☐ Yes ☐ No Type: _____

4. Trip plans
Leaving from: _____ Leaving: _____ date _____ time _____
Route details: _____
Departing: _____ date _____ time _____
Returning: _____ date _____ time _____
And, in no event, returning later than: _____ date _____ time _____

5. Alternate route if bad weather is encountered: _____
Trailer license #: _____
Where parked: _____

6. Description of automobile: _____ Color: _____ License #: _____
Make: _____ If not returned by: _____ date _____ time _____
7. Call: _____
Local authority: _____ Telephone #: (____) _____

IMPORTANCE OF PLANNING AND PREPARATION

Hunting is a safe sport, but it does involve a certain amount of risk. Aside from firearm safety issues, a variety of incidents can occur on a trip outdoors. The rougher the terrain—particularly when it's unfamiliar terrain—the greater the chance of accidents. Climate extremes also increase the risk. In remote areas, there's always the possibility of getting lost.

To plan properly:

- **Be Ready:** To help you avoid or minimize problems, it's essential that you plan carefully for the hunt. Responsible hunters anticipate potential problems and make plans to deal with them. Considerations include terrain, location, weather, dangerous game, and the potential for forest fires.
- **Know Your Location:** Learn as much as you can about your chosen hunting area before you arrive. Purchase a topographic map, and familiarize yourself with the terrain. If the location is within a convenient drive, it's a good idea to visit the area in the off-season.
- **Prepare for Safety:** You also need to assess your physical condition and equipment. Refresh your memory of hunting and firearm safety rules, and review the rules with your hunting partners.
- **Tell Others:** Prepare a hunting plan that tells where and with whom you are hunting and when you expect to return. Give specific directions on your route to your destination and any alternate destinations. Leave the plan with a family member or friend. Do not deviate from your hunting plan without notification. When hunting with a group, each person should discuss their route plan.

Physical Conditioning

- Hunting often demands more physical exertion than you're accustomed to doing. Conditions that hamper your physical ability to perform safely and responsibly while hunting include:
 - Allergies
 - Asthma
 - A heart condition
 - Excess weight
 - Poor physical conditioning
- Your mental condition impacts your performance as well.
- If you're planning a hunt that involves fairly strenuous activity, start getting in shape at least two months ahead of time.

Clothing

- Clothing also can affect your ability to perform safely and responsibly. Select clothing based on the weather you expect, while being prepared for the worst.
- In warm weather, wear a hat and light clothing that covers as much of your skin as possible to prevent heat exhaustion or sunburn.



- Cold weather conditions call for clothing that is worn in layers. Layers offer superior insulation. Also, as weather warms up, you can shed a layer at a time to stay comfortable. Layers should include:
 - A vapor transmission layer (material such as polypropylene)—worn next to the body; it should release moisture from the skin while retaining warmth.
 - An insulating layer—weightier or bulkier; it should hold warm air around you.
 - A protective outer layer—available in various weights and materials according to conditions; it should protect the inner layers from water and wind.

- The most important clothing choices are a daylight fluorescent orange hat *and* daylight fluorescent orange outerwear—a shirt, vest, or jacket. Daylight fluorescent orange clothing makes it easier for one hunter to spot and recognize another hunter because nothing in nature matches this color. The orange color of the clothing should be plainly visible from all directions. This is required by law in many states.



Other Clothing Essentials

- A hat or cap with earflaps and gloves to retain body heat—most body heat is lost through the head and hands; gloves also protect your hands from abrasions and rope burns
- Footwear that is sturdy, suitable for the conditions you'll encounter, and broken in before the hunt
- Two layers of socks—polypropylene against the skin and a wool outer layer

Remember...

Wool is the best all-around choice for insulation because it can provide warmth even when wet. The best clothing combination in bad weather is polyester or polypropylene underwear and shirt, woolen pants, heavy jacket, and water repellent rain pants and parka. Clothing that is soaking wet can lose heat several hundred times faster than dry clothing. Any type of cotton clothing (underwear, T-shirts, jeans, flannel shirts) is a poor choice for cold, wet weather. When wet, cotton loses its already limited insulating ability and can cause rapid transfer of heat away from the body, increasing the risk of hypothermia.

Day Pack/Survival Kit and Equipment

In addition to your hunting gear, which includes your firearm—or bow—and field-dressing equipment, you also should prepare a day pack that includes emergency supplies. Although the contents will vary based on conditions and personal preference, an emergency day pack could include:

- First-aid kit
- Metal, waterproof carrying case that can double as a cooking pot
- Candle
- Knives
- Small can of lighter fluid
- Fire starters—waterproof matches, butane lighter, etc.
- Water
- Iodide tablets for water purification
- Base plate compass with signal mirror
- Nylon rope
- Flashlight with spare batteries and bulbs
- Whistle
- Extra pair of glasses
- Extra two-day supply of prescription medicine
- Emergency high-energy food
- Thermal foil blanket
- Poncho
- Folding saw
- Snare wire or twine
- One-sided razor blade
- Fishing line and hooks
- Plastic sheet or large garbage bag
- Extra boot laces
- Tissues

Additional Equipment

- A sleeping bag appropriate for temperature levels
- Hatchet or ax
- Pencil and paper pad
- Duct tape
- Biodegradable trail markers
- Shovel
- Binoculars or spotting scope

Remember...

Metal objects, such as knives, gun barrels, belt buckles, etc., will affect a magnetic needle.

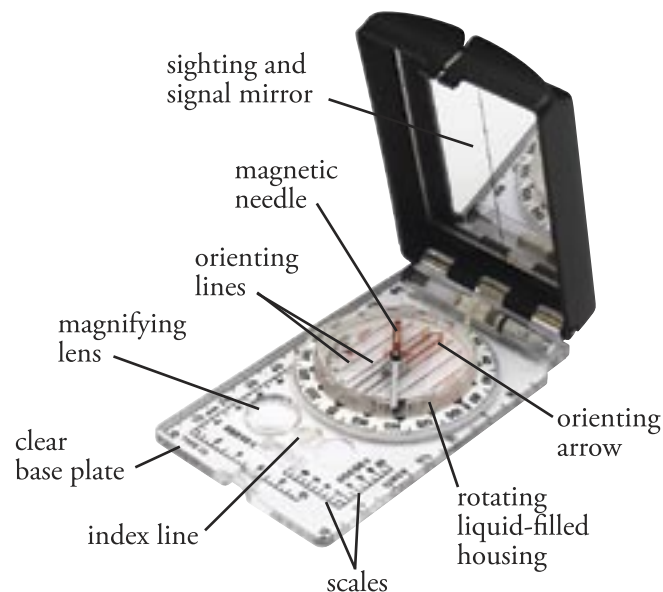
TOPOGRAPHIC MAPS AND COMPASSES

- Whenever you're in a remote or unfamiliar area, a topographic map and compass are a must.
- Topographic maps are created from aerial photographs and reveal the contours of the land, including hills, ridges, and valleys, as well as lakes, rivers, creeks, trails, and roads:
 - Contour lines show the elevation of the ground.
 - Contour intervals reveal how much vertical distance there is between each contour line—closely spaced contour lines indicate very steep slopes.
 - Contour lines that are sharply tapered indicate an uphill direction.
 - Rounded contour lines typically indicate a downhill direction.



The Compass

- The orienteering compass is a critical piece of equipment for outdoor travel.
- A good orienteering compass has these features:
 - Clear base plate that allows you to see the map underneath
 - Straight sides for aligning two points or for drawing lines
 - Liquid-filled needle housing that keeps the magnetic needle relatively steady when taking readings
 - Two arrows: a direction arrow painted on the base plate (or you may use the edge of the compass) is used to point the compass from your starting point to your destination; an orienting arrow, located in the needle housing, is used to orient your compass to your map



Declination

- Topographic maps are drawn to true north (North Pole), which is indicated by the grid lines on the map. However, a compass will always point to magnetic north, which is in the Hudson Bay area. The difference between true north and magnetic north is called “declination.”
- When true north and magnetic north are aligned, you’re at 0° declination. Your compass needle will point to true north. However, if you’re east or west of 0° declination, your compass will not be in line with true north.
- To compensate for declination:
 - Center the north arrow (the “N”) of the compass dial along a north/south line of the map.
 - Check the diagram at the bottom of the map that shows whether magnetic north is to the left or right of true north.
 - Turn the compass dial the correct number of degrees left or right as indicated on the map. The “N” is now pointing at magnetic north.
 - Hold the compass level in front of you and rotate your body until the tip of the compass needle aligns with the “N” on the compass dial. The direction arrow on the base plate now points in the direction you want to go.

Plot Your Progress

- As you hike into unfamiliar terrain, you can keep your bearings by taking frequent compass readings and plotting your progress on a map.
 - Note key points, such as stream crossings, to help you find your way back.
 - Pay particular attention when you reach a high point at the top of a ridge.
 - Use the elevation to locate landmarks visible from there.
- Learning to set a course and take bearings takes study and practice. The best way to become proficient with a compass is under the guidance of an experienced individual.



Topographic Maps

Topographic maps are available at many outdoor stores or may be ordered from:

*U.S. Geological Survey
Branch of Distribution
P.O. Box 25286
Federal Center
Denver, CO 80225*

National Forest Service Travel Maps show forest road networks and restrictions. They are available from the U.S. Forest Service.

Remember...

If you're an experienced map reader, you can:

- Read terrain
- Determine direction
- Follow rivers, valleys, and ridges
- Find your location in relationship to your camp
- Identify areas preferred by game animals

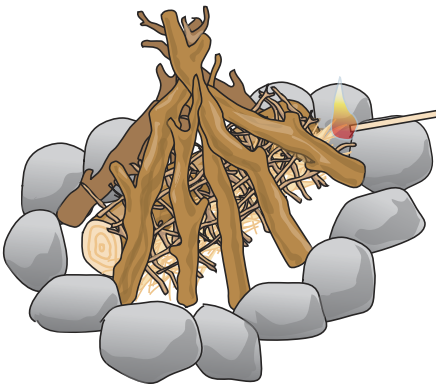
Global Positioning System (GPS)

- The Global Positioning System (GPS) is a navigation system based on a network of 24 satellites. Users with a GPS unit can determine their exact location (latitude and longitude) in any weather conditions, all over the world, 24 hours a day.
- GPS satellites circle the earth twice a day and transmit information to Earth. GPS receivers use this information to calculate the user's location by comparing the time a signal was transmitted by a satellite with the time it was received. The time difference tells the GPS receiver the distance from the satellite. By calculating the distances from several satellites, the receiver can determine and display the user's location on the GPS unit.
- Once the user's position is determined, a GPS unit can calculate other information—bearing, trip distance, distance to destination, sunrise and sunset times, and more.
- GPS receivers are accurate to within 15 meters (49 feet) on average. Certain atmospheric factors and other sources of error can affect the accuracy. Accuracy can be improved with a Differential GPS (DGPS) or WAAS (Wide Area Augmentation System).



Rules of Survival

- Tell someone where you're going and when you plan to return.
- Don't hunt alone.
- Take enough food and water to last for at least two days in an emergency.
- Bring a map and compass, and always orient yourself before leaving camp.
- Wear layered clothing and take extra clothing, preferably wool and polyester, with you.
- Plan your outings so that you can return to camp before dark.
- Never leave camp without taking fire-starting equipment and a foil blanket.
- Don't panic if you become lost.



A tepee of larger sticks enclosing the kindling is a good way to start a fire.

SURVIVAL SKILLS

Planning and preparation should keep you from having an outdoor misadventure. If something does go wrong, switch into survival mode.

Most everyone who treks into the wilderness gets turned around occasionally. How you respond in the early stages often determines if your disorientation becomes a temporary inconvenience or a traumatic ordeal. If you keep a cool head, you'll usually get your bearings fairly quickly.

Think through recent events to see if you can retrace your path. If you decide you can't return to your camp or car, commit yourself to spending the night where you are. If you remain in one spot, it's very likely that you will be found in a few days.

You now have three priorities: shelter, fire, and signal.

Shelter

- Start preparing your camp well before dark. Look for a natural shelter, such as a rock overhang or a thick stand of evergreens. The site should be dry and well drained, and protect you from the wind. Ideally, it also should be near water and plenty of firewood.
- If no natural shelter is available, pick an area with materials nearby to build a lean-to or debris hut.
- A lean-to is constructed by leaning branches against a horizontal support to form a frame for a roof. Be sure to orient the opening away from the wind. Cover the frame with evergreen branches to block out wind or precipitation. Leaves and twigs are another option. If you need additional protection, you can add side walls.
- Build your fire where its heat will radiate into the shelter. Your sleeping area should be located between the shelter wall and the fire.



Starting a Fire

- If there is snow on the ground, build the fire on a platform of green logs or rocks. If the terrain is dry, clear a patch of bare dirt to avoid starting a grass or forest fire.
- Gather everything you need before starting the fire. Pile fuel ranging from small twigs to fuel logs next to the fire site. Collect more fuel than you think you can use; you may need more than you estimate.
- Pile fine twigs, grass, or bark shavings loosely as a base. If you can't find dry kindling, remove bark from trees. Use your knife to shave dry wood from the inside of the bark.
- Place slightly larger sticks on the starter material until you have a pile about 10 inches high.
- If there's no breeze, light the kindling in the middle of the base. If there is a breeze, light one end of the kindling so that the flame will be blown toward the rest of the fuel. As the kindling lights and the flames spread to the larger twigs, slowly add more wood to the blaze. Add larger pieces as the fire grows. A large fire will throw more heat and be easier to maintain.

Signaling for Help

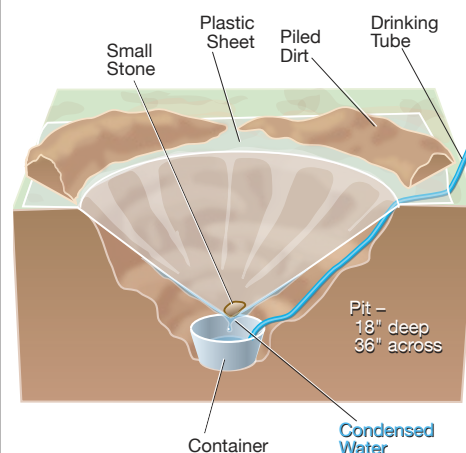
- When you decide to stay put and wait for rescue, prepare help signals as soon as possible.
- The international emergency sign for distress is three of any signal: three shots, three blasts on a whistle, three flashes with a mirror, or three fires evenly spaced. If you're near an open space, walk an "X" in the snow, grass, or sand. Make it as large as possible so that it can be seen easily from the air. Placing branches, logs, or rocks along the "X" will make it more visible. Do not light signal fires until you hear an aircraft. Adding green boughs, preferably pine if available, to the fire will help create smoke.
- Once you have a shelter, fire, and your signal prepared, you can focus on water and food.

Water

- Even in cool weather, you need two to four quarts of water a day. Under most conditions, humans can only last about three days without water.
- Pure drinking water is rare, even in the most remote regions. Clear mountain streams often are contaminated by *Giardia lamblia*, a parasite that causes serious intestinal sickness in humans.
- The best way to purify water is by boiling. Chemical purifiers such as iodide or chlorine and filter systems can be used, but some may not be satisfactory. Never make survival problems worse by drinking unsafe water.

Food

- Humans can go for two weeks or more without food. Although the need for food is not that urgent, you'll be more comfortable and clear-headed if you eat. Anywhere there is game, there is food, but probably not what you're accustomed to eating.
- Before you head into a remote area, it's a good idea to read up on what's edible in that particular region. Hopefully, you'll be able to use your hunting equipment to harvest the bulk of your food.



Solar Still

Solar stills can provide emergency drinking water. Ground water condenses on a plastic cone set in the ground and drips into a collecting pan.

To make a solar still:

- Dig a pit 3 feet wide by 18 inches deep
- Place a shallow container in the center
- Run a tube from the container to the edge of the pit
- Lay clear plastic over the pit and place a rock or a little soil in the center to form a cone
- Draw water through the tube to avoid disturbing the still
- Make several stills if you have no other source of water

Personal Locator Beacon

Personal locator beacons (PLBs) provide a distress and alerting system for use in a life and death situation. A PLB is a small transmitter that sends out a personalized emergency distress signal to a monitored satellite system. When you buy a PLB, you must register it with the National Oceanic and Atmospheric Administration (NOAA). PLBs are a highly effective and internationally recognized way to summon help.



deleted
last line
from first
bullet
under
"Food"

"As a
general
rule..."

new
side-
bar

Remember...

Hypothermia is the number one cause of outdoor fatalities.



Hypothermia is often induced by cold, wet conditions, such as rain, snow, sleet, or immersion in water.

COPING WITH EXTREME WEATHER

Some of the most common and dangerous risks to hunters result from exposure to extreme weather.

Hypothermia

Hypothermia occurs when your body loses heat faster than it can produce it, causing your core body temperature to fall. Hypothermia is often induced by cold, wet conditions, such as rain, snow, sleet, or immersion in water.

Moisture from perspiration, humidity, and dew or rain on bushes and trees can also soak your clothing over time, putting you at risk in cold weather. Wet or damp clothes will draw heat out of your body more rapidly than air. Wind lowers your body temperature as it evaporates moisture from your body. Resting against cold surfaces also will draw heat from your body.

■ Prevention of Hypothermia:

- Hypothermia can be prevented by dressing properly, by avoiding potentially dangerous weather conditions, and by drying out as quickly as possible when you get wet.
- High-calorie foods, such as chocolate, peanuts, or raisins, provide quick energy that helps your body produce heat.

■ Symptoms of Hypothermia:

- Uncontrolled shivering—usually the first obvious symptom, but ceases as hypothermia progresses
- Slow, slurred speech
- Memory loss
- Irrational behavior, such as removing clothing
- Lack of body movement
- Sleepiness
- Unconsciousness, which could lead to death



■ Treatment of Hypothermia:

- Find shelter for the victim.
- Remove wet clothing, and replace with dry clothing and other protective covering. If there is no dry clothing, use a fire to dry one layer at a time.
- Give warm liquids to re-hydrate and re-warm, but never give the victim alcohol to drink. Quick-energy foods also produce inner body heat.
- For mild cases, use fire, blankets, or another person's body heat to warm the victim.
- In more advanced stages, re-warm the victim slowly by placing one or more persons in body contact with the victim. Place canteens of hot water insulated with socks or towels on the groin, armpits, and sides of the neck of the victim.
- A victim at or near unconsciousness must be handled gently, and not immersed in a warm bath or exposed to a large fire, which can lead to traumatic shock or death. Immediately contact emergency medical personnel to evacuate the victim to a hospital for treatment.

Frostbite

Frostbite occurs when tissue freezes. The best prevention is to avoid severe weather. If you're caught in extremely cold weather, pay attention to your head and extremities, such as fingers, toes, ears, and nose. Wear a face cover if the temperature is below zero degrees Fahrenheit. If you experience any symptom of frostbite, treat immediately.

■ Symptoms of Frostbite:

- Skin turns off-white
- Prickly or tingling feeling as ice crystals form
- Feet may be painful initially, and then pain disappears as frostbite progresses
- In severe cases, loss of feeling in the affected area

■ Treatment of Frostbite:

- Warm the affected area with body heat, but avoid rubbing the area—it can damage tissue.
- Don't use hot water or other external heat sources, which could cause burns.
- Wrap with warm, dry clothing.
- Get to a warm shelter.
- Drink hot liquids.
- Get medical attention.

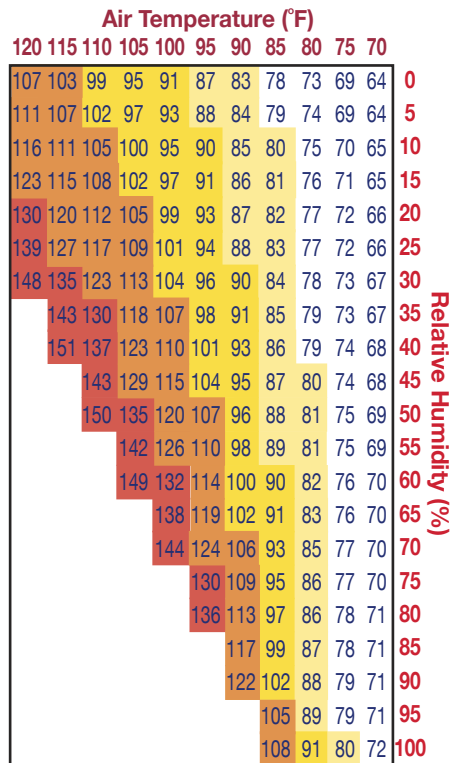
Basics of Cold Survival without Fire

- *Wear proper type of clothing (no cotton).*
- *Stay dry. Use water-repellent outer garments.*
- *Build a shelter. The best is a nylon tarp shelter as it will protect you from wind, rain, and snow. Insulate the floor of the shelter with pine boughs, if available.*
- *Avoid contact with cold surfaces (the ground, rocks, or snow).*
- *Wrap your body in a thermal foil blanket. This will maintain a temperature of 60° inside the wrap even when the outside temperature is 10° below zero.*
- *Limit your physical activity to conserve energy.*

		Wind Speed (mph)																	
		5	10	15	20	25	30	35	40	45	50	55	60						
36	34	32	30	29	28	28	27	26	26	25	25	25	25	40	Air Temperature (°F)				
31	27	25	24	23	22	21	20	19	19	18	17	17	17	35					
25	21	19	17	16	15	14	13	12	12	11	10	10	10	30					
19	15	13	11	9	8	7	6	5	4	4	3	3	3	25					
13	9	6	4	3	1	0	-1	-2	-3	-3	-4	-4	-4	20					
7	3	0	-2	-4	-5	-7	-8	-9	-10	-11	-11	-11	-11	15					
1	-4	-7	-9	-11	-12	-14	-15	-16	-17	-18	-19	-19	-19	10					
-5	-10	-13	-15	-17	-19	-21	-22	-23	-24	-25	-26	-26	-26	5					
-11	-16	-19	-22	-24	-26	-27	-29	-30	-31	-32	-33	-33	-33	0					
-16	-22	-26	-29	-31	-33	-34	-36	-37	-38	-39	-40	-40	-40	-5					
-22	-28	-32	-35	-37	-39	-41	-43	-44	-45	-46	-48	-48	-48	-10					
-28	-35	-39	-42	-44	-46	-48	-50	-51	-52	-54	-55	-55	-55	-15					
-34	-41	-45	-48	-51	-53	-55	-57	-58	-60	-61	-62	-62	-62	-20					
-40	-47	-51	-55	-58	-60	-62	-64	-65	-67	-68	-69	-69	-69	-25					
-46	-53	-58	-61	-64	-67	-69	-71	-72	-74	-75	-76	-76	-76	-30					
-52	-59	-64	-68	-71	-73	-76	-78	-79	-81	-82	-84	-84	-84	-35					
-57	-66	-71	-74	-78	-80	-82	-84	-86	-88	-89	-91	-91	-91	-40					
-63	-72	-77	-81	-84	-87	-89	-91	-93	-95	-97	-98	-98	-98	-45					

Frostbite occurs in 15 minutes or less

Wind chill is given in the body of the table. The National Weather Service issues a Wind Chill Advisory when wind chills are expected to reach 10° below zero. A Wind Chill Warning will be issued when wind chills are expected to be 20° below zero or less.



Heat Index	General Effect of Heat Index
Yellow	Fatigue possible with prolonged exposure and/or physical activity
Orange	Sunstroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity
Red	Sunstroke, heat cramps, or heat exhaustion likely and heat stroke possible with prolonged exposure and/or physical activity
Dark Red	Heat stroke highly likely with continued exposure

Heat Exhaustion

Heat exhaustion is the opposite of hypothermia: the core body temperature increases, usually as a result of hot and humid conditions, plus a lack of water.

■ Prevention of Heat Exhaustion:

- Drink plenty of water
- Take frequent breaks if you're hiking to or from your hunting spot, especially when carrying a large load
- Dress in layers, and shed layers as physical activity increases

■ Symptoms of Heat Exhaustion:

- Pale and clammy skin
- Weakness
- Nausea
- Headache
- Muscle cramps

■ Treatment of Heat Exhaustion:

- Move to a cooler place and drink water
- Fan to lower body temperature, but don't over-chill

Heat Stroke

Heat stroke should be treated as a medical emergency—it can be fatal.

■ Symptoms of Heat Stroke:

- Dry, hot, and flushed skin—dark or purple in color
- Dilated pupils
- Slow, weak pulse
- Shallow breathing
- High temperature—may be in excess of 106° Fahrenheit

■ Treatment for Heat Stroke:

- Wrap in a sheet and soak with cool—not cold—water
- Fan but don't over-chill
- Get to a hospital immediately

BASIC FIRST AID

Every hunter should take a first-aid course to learn what to do in case of injuries. Below are some common injuries that could occur while hunting.

Bleeding

- Severe bleeding is a life-threatening medical emergency. The rapid loss of just two pints of blood can result in shock and loss of consciousness. A victim can bleed to death in a short time.
- To stop bleeding:
 - Apply direct pressure on the wound.
 - Cover with a sterile gauze pad—or the cleanest cloth readily available. Concerns about infection are secondary when it comes to preventing massive blood loss.
 - Press the pad firmly over the wound using the palm of your hand. Don't lift the pad to check the wound—it will only renew bleeding.
 - When a pad becomes soaked, put a fresh one directly over the old pad.
 - If the wound is on a limb and there's no fracture, raise the limb above the level of the heart. Gravity will reduce the blood pressure in the limb.
- Direct pressure and elevation are usually sufficient to stop bleeding. If profuse bleeding continues, try shutting off circulation in the artery that supplies blood to the injured limb.

Broken Bones

- You can assume someone has a broken bone if pain lasts more than a few minutes, moving the injured area is difficult, or there is swelling in the injured area.
- If you have to transport the victim a long distance, it's best to immobilize the joint above and below the break to prevent further injury and relieve pain. Don't try to straighten the limb—splint it the way you found it. For a broken foot, remove the shoe and tie a pillow or thick padding around the foot.
- To splint a broken leg:
 - Place a blanket or some other type of thick padding between the legs.
 - Bind the injured leg to the uninjured one with strips of cloth.
 - Bind the legs together snugly at several places above and below the painful area.

Burns

- First-degree burns and second-degree burns with closed blisters are best treated with cold water.
 - Immerse the burned area or cover it with cloths that have been soaked in cold water—don't use ice water.
 - Avoid using butter or any type of greasy ointment because they can interfere with healing and cause an allergic reaction.
- Second- and third-degree burns with open blisters should be wrapped with a loose, dry dressing.

Remember...

Every hunter should take a first-aid course and a course in cardiopulmonary resuscitation (CPR) to be prepared to handle outdoor emergencies. A prepared hunter also will carry a complete first-aid kit.

Moving an Injured Person

Moving a victim with a back or neck injury should be left to paramedics or other professionals since permanent damage could result from improper handling.

If a victim must be pulled to safety, move him or her lengthwise and headfirst, supporting the head and neck. Keep the spine in alignment.



First-Aid Kit

- 2-inch-square sterile gauze pads
- 4-inch-square sterile gauze pads
- Assorted adhesive dressings
- Assorted butterfly dressings
- Roll of 1-inch adhesive tape
- Roll of 2-inch adhesive tape
- Moleskin
- 2-inch-wide gauze bandage roll
- Antibiotic salve
- Petroleum jelly
- One-half percent hydrocortisone cream
- Scissors
- Tweezers
- Cotton swabs
- 42-inch-square cloth for triangular bandage or sling
- Safety pins
- Needles
- Instant chemical cold packs
- Thermometer
- Aspirin
- Antacid
- Decongestant
- One-sided razor blades
- Sterile eyewash
- Eye dropper
- Coins for pay phone

Carbon Monoxide Poisoning

- Improperly working camp stoves and lanterns, as well as wood and charcoal fires, can produce lethal carbon monoxide.
- Symptoms of carbon monoxide poisoning include headache, dizziness, weakness, and difficulty in breathing. The victim's skin can turn red, and he or she can lose consciousness.
- Get victims into the fresh air immediately, and keep them lying quietly. Prompt medical care is essential.

Chest Wounds

- A bullet striking the chest can cause a sucking chest wound—a deep, open wound of the chest wall that allows air into the chest cavity.
- All chest injuries are very serious and need immediate medical attention. To respond immediately to a chest wound:
 - Use the palm of your hand to cover the wound until a bandage is located.
 - Cover the wound with sterile gauze, a clean cloth, plastic, or foil.
 - Make sure the wound cover forms an air-tight seal.
 - Hold the gauze in place with a bandage or tape.
 - If the victim has trouble breathing, remove the bandage and replace it quickly.
 - Transport the victim to the hospital with the injured side down.

Shock

- Shock can result from any serious injury. Symptoms include pale, cold, clammy skin; rapid pulse; shallow breathing; and fear in the victim.
- To treat shock:
 - Keep the victim in a prone position. In some cases, shock victims improve by raising their feet 8 - 10 inches.
 - If the victim is having trouble breathing, raise the victim's head and shoulders about 10 inches rather than raising the feet.
 - Maintain normal body temperature and loosen any restrictive clothing.
 - Try to keep the victim calm and comfortable, and get medical help as quickly as possible.

Snakebite

- Most doctors agree that the best response is to rush the victim to a hospital emergency room. Do not try to remove poison from snakebites. Cutting and suctioning the bite can do more harm than good.
- Fear and panic aggravate snakebite reactions. Calm the victim as much as possible. Keep the victim in a reclining position to slow the spread of venom. If the bite is on a limb, keep the wound at or below the level of the heart.

Objectives You should be able to...

- Define wildlife conservation, and explain how it differs from preservation.
- List the five essential elements for wildlife habitat.
- Define carrying capacity.
- List the factors that limit wildlife populations.
- Explain the role of hunting in wildlife conservation.
- Give five examples of wildlife management practices, and explain how each helps conserve wildlife populations.
- List the five groups commonly used to divide wildlife.
- Explain why the correct identification of wildlife is crucial for hunting.
- Give one example of a large mammal and some of its distinguishing features.
- Tell where to find more information on identifying characteristics, habitat, and range of common wildlife species.

WILDLIFE CONSERVATION

- The concept of wildlife **conservation** has been around since ancient times. Restrictions on taking game are mentioned in the Bible, and the first official hunting season may have been established in the 13th century by Kublai Khan.

conservation:

Wise use of natural resources, without wasting them

preservation:

Saving natural resources, but with no consumptive use of them

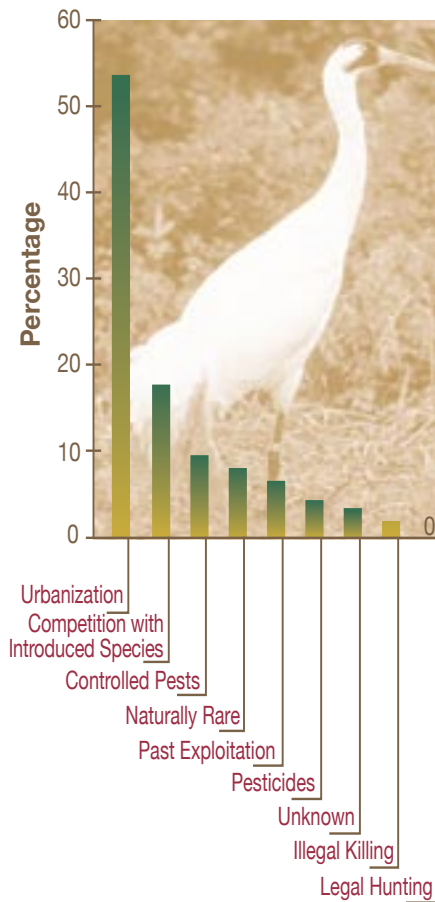


- Today, wildlife conservation has evolved into a science, but its goal remains essentially the same: to ensure the wise use and management of renewable resources. Given the right circumstances, the living organisms that we call renewable resources can replenish themselves indefinitely.
- **Preservation** is another means of protecting or saving a resource, such as by outlawing hunting of endangered species. Both preservation and conservation are necessary to sustain resources for future generations.

wildlife management:

Science and practice of maintaining wildlife populations and their habitats

Causes of Threatened and Endangered Species



habitat:

Complete environmental requirements of an animal for survival: food, water, cover, space, and arrangement

Remember...

No North American animal has become extinct because of sport hunting.

Lessons in Wildlife Management

- Initially, **wildlife management** in the United States was skewed toward protection. In the early 1900s, for example, wildlife managers attempted to preserve a mule deer herd in the remote Kaibab Plateau of Arizona. Hunting was banned, and predators were destroyed. The result was severe overpopulation, habitat destruction, and mass starvation.
- The Kaibab Plateau was opened to hunting in 1929, which brought the population into balance with the habitat. Today, a large, healthy herd of mule deer inhabits the area.
- Around the same period, a similar event took place in Pennsylvania. Deer had been brought into the state after the native population was thought to be extinct. With most of the predators eliminated and little hunting allowed, the herd grew out of control. As the food supply dwindled, thousands of white-tailed deer starved to death.
- From these hard lessons, wildlife managers learned that there is more to conservation than just protecting wildlife. They discovered that nature overproduces its game resources and that good wildlife management yields a surplus that can be harvested by hunters.

Habitat Management

- The most critical aspect of wildlife conservation is **habitat** management. Habitat loss presents the greatest threat to wildlife.
- Five essential elements must be present to provide a viable habitat: **food, water, cover, space, and arrangement.**



Water



Cover



Food

- The need for food and water is obvious. Cover is not only needed as shelter from the elements and predators, but it's also necessary to protect animals while they are feeding, breeding, roosting, nesting, and traveling. Cover can range from thick weeds and brush to a few rocks piled together.

- Space is necessary to avoid over-competition for food. Some animals also need a certain amount of territorial space for mating and nesting. When crowded, some species may develop stress-related diseases.
- Arrangement refers to the placement of food, water, cover, and space in a habitat. The ideal arrangement allows animals to meet all of their needs in a small area so that they minimize the energy they use when traveling from food to cover to water.



Space and Arrangement

- For example, quail will spend much of their time where shrub and grassland areas converge. This is called **edge effect**. Most animals can be found where food and cover meet, particularly near a water source. River bottoms are ideal, offering many animals all their habitat needs along one corridor.

Balancing Act

Habitats must be in balance in order to support wildlife. Remove a certain population of plants or animals from a community and the community may not survive. This typically happens when urban development pushes into wildlife areas.



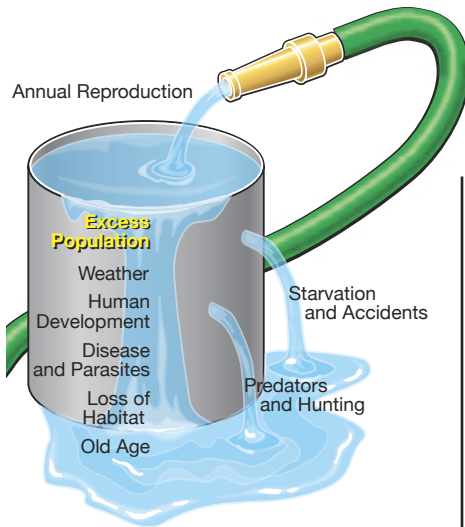
Before Urban Development



After Urban Development

edge effect:

Habitat conditions of an area created when two types of habitat are brought together

modified
graphic**carrying capacity:**

The number of animals the habitat can support throughout the year without damage to the animals or to the habitat

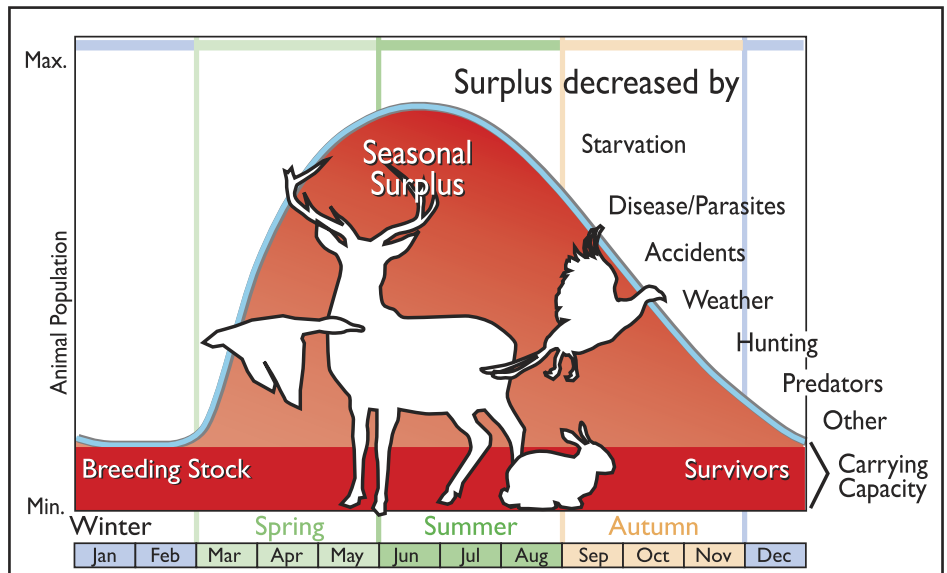
**Hunters and Wildlife Conservation**

Hunters spend more time, money, and effort on wildlife conservation than any other group in society. In addition to participating in the harvest of surplus animals, hunters help sustain game populations by:

- Filling out questionnaires
- Participating in surveys
- Stopping at hunter check stations
- Providing samples from harvested animals
- Helping fund wildlife management through license fees

Carrying Capacity

- The resources in any given habitat can support only a certain quantity of wildlife. As seasons change, food, water, or cover may be in short supply. **Carrying capacity** is the number of animals the habitat can support all year long. The carrying capacity of a certain tract of land can vary from year to year. It can be changed by nature or humans.
- Factors that limit the potential production of wildlife include:
 - Disease/parasites
 - Starvation
 - Predators
 - Pollution
 - Accidents
 - Old age
 - Hunting
- If the conditions are balanced, game animals will produce a surplus, which can be harvested on an annual, sustainable basis.

**The Hunter's Role in Wildlife Conservation**

- Since wildlife is a renewable resource with a surplus, hunters help control wildlife populations at a healthy balance for the habitat. Regulated hunting has never led to threatened or endangered wildlife populations.
- Hunting is an effective wildlife management tool. Hunters play an important role by providing the information from the field that wildlife managers need.
- Funding from hunting licenses has helped many game and non-game species recover from dwindling populations.

WILDLIFE MANAGEMENT AND CONSERVATION PRINCIPLES

- The wildlife manager's job is to maintain the number of animals in a habitat at or below the habitat's carrying capacity so that no damage is done to the animals or to their habitat.
- In a sense, a wildlife manager's task is similar to a rancher's. Just as a rancher limits the number of animals in a cattle herd to a level that the habitat can tolerate, wildlife managers try to keep the number of animals in balance with their habitat. In addition to looking at the total number of each species in a habitat, wildlife managers also monitor the breeding stock—the correct mix of adult and young animals needed to sustain a population.
- To manage a habitat, wildlife managers must consider historical trends, current habitat conditions, breeding population levels, long-term projections, and breeding success. With that knowledge, wildlife managers have a variety of practices at their disposal to keep habitats in balance.

Wildlife Management Practices

- **Monitoring Wildlife Populations:** Wildlife managers continuously monitor the **birth rate** and **death rate** of various species and the condition of their habitat. This provides the data needed to set hunting regulations and determine if other wildlife management practices are needed to conserve wildlife species.
- **Habitat Improvement:** As **succession** occurs, the change in habitat affects the type and number of wildlife the habitat can support. Wildlife managers may cut down or burn forested areas to promote new growth and slow down the process of succession. This practice enables them to increase the production of certain wildlife species.
- **Hunting Regulations:** Hunting regulations protect habitat and preserve animal populations. Regulations include setting daily and seasonal time limits, bag limits, and legal methods for taking wildlife.
- **Hunting:** Hunting is an effective wildlife management tool. Hunting practices help managers keep animal populations in balance with habitat.
- **Predator Control:** In rare instances, **predators** must be reduced to enable some wildlife populations to establish stable populations, particularly threatened or endangered species.
- **Artificial Stocking:** Restocking of game animals has been successful in many parts of the nation. Trapping animals in areas where they are abundant and releasing them in other areas of suitable habitat is an example of restocking.
- **Controlling or Preventing Disease and Its Spread:** Disease can have a devastating effect on wildlife. Avian cholera, for example, poses a serious threat, especially to ducks and geese on crowded wintering grounds. Once cholera occurs, managers must work to prevent its spread by gathering and burning waterfowl carcasses daily.
- **Management Funds/Programs:** In addition to the Pittman-Robertson funds, many states have initiated programs that help finance conservation efforts.

Beneficial Habitat Management Practices

- Food plots and planting
- Controlled burning
- Brush pile creation
- Timber cutting
- Ditching
- Diking
- Nuisance plant or animal control
- Mechanical brush or grass control
- Water holdings



Suppose each adult pair of waterfowl produces six young each year and none of the factors that limit wildlife production are active. At the end of the fifth year, the initial pair will have grown to over 2,000 waterfowl.

birth rate:

The ratio of number of young born to females of a species to total population of that species over one year

death rate:

The ratio of number of deaths in a species to total population of that species over one year

succession:

Natural progression of vegetation and wildlife populations in an area; for example, as trees grow and form a canopy, shrubs and grasses will disappear along with the wildlife that use them as cover

predator:

Animal that kills other animals for food



Rare, Protected or Endangered Species

Some species are protected from hunting because their numbers are small and produce no surplus to harvest. Animals that are designated as "rare," "threatened," or "endangered" are all fully protected by law. Contact your state's fish and wildlife management agency to find out which species are endangered or threatened.

White-tailed Deer



Reddish-brown to blue-gray or tan coloring; underside of tail is white, producing a "flag" when raised off rump. Antlers on male consist mainly of main beam with tines growing from it.



Habitat and Habits: Lives in forests, swamps, open brushy areas, foothills, plains, and river bottoms. Herbivorous.

Movement limited to one to two miles. Lives up to 16 years. Male is polygamous; rut runs Oct. - Dec. One to two spotted fawns typical.

WILDLIFE IDENTIFICATION

- As a responsible hunter, you should educate yourself about wildlife prior to your hunt. The ability to accurately identify species will make you a better hunter and will increase the enjoyment of your hunting experience.
- Developing wildlife identification skills is a basic requirement for hunters. Mistakes can lead to illegal harvest of game or non-game animals. To identify game properly, you must learn to recognize key characteristics of the animal you're hunting.
- Identifying animals accurately can be a challenge. Sometimes the difference between animals in the same species is subtle, such as the size of their ears or distinctive coloring.

Recognizing tracks, scat, food sources, and habitat types can also help you identify animals.

- A variety of print and visual resources are available to help you increase your knowledge about wildlife. Television shows that feature hunting and nature topics can also be a good source of information.
- Wild animals are generally divided into five groups:
 - Large mammals
 - Small mammals
 - Upland birds
 - Waterfowl
 - Rare, protected or endangered species
- Other wildlife groups are wetland birds and birds of prey.

Large Mammals

Large mammals are large-sized, warm-blooded animals with hair. Young are nourished with milk from the mother.

Large mammals can be sorted into family groups. Each family has unique features. For example, the deer family, which includes deer, elk, and moose, has cloven hooves—a hoof in two parts. They are also cud chewers, equipped with broad, flat teeth and a hard palate (instead of upper front teeth), which rolls and crushes cud.

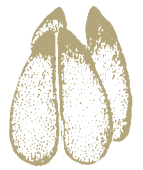
Deer also have antlers, which are solid bone and are shed annually. They rub their antlers on trees. Spotting a deer's "rub" on a tree is an indication that deer may be close by.

Horns are found on sheep and goats. Horns are hollow and are not shed. Females have horns with half-moon curves, while males have larger horns that curve around each side of the head.

Large mammals **also can** be distinguished by diet. Wolves and mountain lions eat only meat, and bears eat plants and meat.

changed text under Large Mammals

Mule Deer



Reddish coloring in summer and blue-gray in winter. Rump patch is cream-colored with black tip, tail is cream-colored. Ears are larger than the white-tailed deer. Antlers branch equally.

Habitat and Habits: Lives in forests, desert shrubs, thickets of shrubs or trees, grasslands, plains, foothills, and river bottoms. Herbivorous. Lives up to 16 years. Male is polygamous; rut runs Oct. - Dec. One to two spotted fawns typical.



■ summer range

■ winter range

■ all year range

■ not present

Black-tailed Deer



Smaller than mule deer with a less extensive range. Can be distinguished from mule deer by its blackish or brown coloring on top of tail.



Habitat and Habits: Lives in mixed open to wooded terrain along the Pacific Coast. Herbivorous.

Lives up to 16 years. Male is polygamous; rut runs Oct. - Dec. One to two spotted fawns typical.

Pronghorn



deleted
White-hoofed

Reddish to tan coloring. Large white rump patch, short white tail; rump hair stands up when alerted or fleeing. Two broad white bands across neck. Male has large black jaw patch and larger, slightly curved horns with single prong growing forward.



Habitat and Habits:

Lives in open prairies, plains, and brushlands. Herbivorous. Lives for 14 years. Male is polygamous; rut runs Aug. - Nov. Two fawns typical.

deleted grayish-brown

Bighorn Sheep



Dark brown to gray coloring; white rump patch with short darker tail. Two heavy, tapering, curled brown horns on male; smaller and less curled on female.

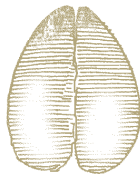


Habitat and

Habits: Lives in rocky, mountainous terrain, preferring bluffs or steep slopes. Herbivorous. Lives for 15 years. Male is polygamous; rut runs Nov. - Dec.;

males engage in battles, butting heads. One small brown lamb typical.

Elk (Wapiti)



Dark brown to tan coloring; yellowish rump patch and tail. Large, spreading antlers on male.



Habitat and Habits: Lives in mountain terrain in summer and may move to lower elevation, wooded slopes in

winter. Herbivorous. Lives up to 15 years. Male is polygamous; rut runs Sept. - Nov. Usually one calf; spotted until 3 months of age.

Woodland Caribou



The largest of the caribou, dark brown with whitish neck, underside, rump, and above each hoof. All males and more than half of females have semipalmated antlers with a prominent vertical tine over nose. Females' antlers are smaller.



Habitat and

Habits: Found in boreal coniferous forests, alpine tundra, and in muskegs (peat bogs). Herbivorous. Male is polygamous; rut runs late Sept. Grayish-brown fawns.

Moose



Dark brown coloring; legs are grayish. Large overhanging snout; dewlap on throat. Antlers on male are massive, palmate, and flat.



Habitat and

Habits: Lives in forests with lakes and swamps.

Herbivorous. Lives up to 20 years. Male is polygamous; rut runs Sept. - Oct. Usually one calf; light reddish-brown with dark stripe down back.

■ summer range

■ winter range

■ all year range

■ not present

Mountain Lion (Cougar)



Large tan cat with long dark-tipped tail.



Habitat and Habits:

Lives mainly in rugged mountains and sometimes in forests and swamplands with dens in caves,

rock crevices, and other concealed locations. Carnivorous. Makes a food "cache" out of uneaten prey. Mainly nocturnal. Typically two to four spotted cubs born throughout the year.

Bobcat



Medium-sized with reddish-spotted fur (gray in winter) and black on top and at tip of very short tail. Light-spotted underside including face.

Habitat and Habits:

Lives in thickets of shrubs or trees, swamplands, woodlands, rimrock, and

rocky prairies. Carnivorous. Mainly nocturnal and solitary. Two to four kittens in one litter can be born throughout year.



Lynx



Distinguished from bobcat by black-tipped tail and tufted ears. Has extremely large feet, allowing it to move easily in snowy terrain.

Habitat and Habits:

Lives in forested areas and swamps. Dens in hollow logs below roots and other sheltered spaces. Carnivorous. One to four kittens in a litter.



Collared Peccary (Javelina)



Pig-like with coarse black and gray hair and collar of light-colored hair around neck. Upper tusks are sharp and pointed downward.

Habitat and Habits:

Lives in brushy, dense semi-arid deserts, thickets of shrubs or trees, mesquite and cacti regions along cliffs,

and near water holes. Omnivorous. Travels in groups. Two young born throughout year.



Coyote



deleted to large

Medium-sized with gray to reddish-gray fur, more tan on legs, feet, and ears; dark-tipped tail; whitish belly and throat.

Habitat and Habits:

Lives in prairies, open woodlands, shrublands, and a variety of habitats. Carnivorous. Mainly

nocturnal but can be active anytime. Five to ten pups born Apr. - May.



Gray Wolf (Timber Wolf)



Largest wild dog. Color varies from white (arctic) to black, but usually a grizzled gray. Tails often black-tipped. Unlike coyote, holds tail straight out when running.

Habitat and Habits:

Lives in north wilderness forests and tundra, and all habitats in other ranges except desert and high mountains.

Carnivorous. Mainly nocturnal but can be active anytime. One to eleven pups born Apr. - Jun.



■ summer range

■ winter range

■ all year range

■ not present

revised map

Mountain Goat



Long white fur that turns yellowish in winter, black hooves and horns that curve slightly backward, and a distinctive beard.



Habitat and Habits: Usually found above timberline on rocky precipices or steep slopes moving closer to the

timberline during winter months. Herbivorous. Lives up to 12 years. Movement limited to three to six miles. Male is polygamous; rut runs Nov. - Dec. Typically one to two kids, brown hairs along back.

Black Bear



Color varies from black or cinnamon to blond in West and black in East; muzzle usually brown; may have a small white patch on chest. Male much larger than female.



Habitat and Habits:

Lives primarily in forest and swamps in East, in forest and wooded mountains in West. Omnivorous. Lives

up to 30 years. Nocturnal, usually solitary, except mother with cubs. Mates Jun. - Jul. Typically two to three cubs, born in winter.

Grizzly Bear



Color varies from light yellow to dark brown to nearly black; fur on back usually white-tipped giving grizzled effect. Distinguished from black bear by noticeable hump above shoulders.



Habitat and Habits:

Lives in open, mountainous areas in West and on tundra in far north.

Omnivorous. Lives 15 - 34 years. Nocturnal. Mates Jun. - Jul. Typically two cubs, born in winter.

Small Mammals

Small mammals are smaller-sized, warm-blooded animals with hair. Young are nourished with milk from the mother.

Two of the most common small game animals are cottontail rabbits and squirrels.

These mammals have a high birth rate, a high death rate, and a short life span.

Some small mammals that are sought after primarily for their pelts are called furbearers. Two popular breeds are mink and muskrats.

changed text under Small Mammals

Common Raccoon



Medium-sized with dark and light mixed fur and distinctive black mask across white face; small- to medium-sized ears and ringed tail.



Habitat and Habits:

Lives in woods, often near water; also found in urban areas.

Omnivorous. Nocturnal. Two to seven young born Apr. - May.

Nine-banded Armadillo



Small cat-sized with grayish-brown armor-plated body.



Habitat and Habits:

Lives mainly in woodlands, brushy areas, farmlands, and bluff country. Omnivorous. Roots around in damp, moist leaves and

brush for its food. Four young of same sex born Mar. - Apr.

American Badger



Medium-sized with short black legs and yellowish-gray hair. Medium white stripe over head to nose, white cheeks, and black patch in front of each ear. Long front claws for digging.



Habitat and Habits: Lives in open grasslands, deserts, and thickets of shrubs and trees. Carnivorous, feeds mainly on small rodents. Lives 12

years. Breeds during Jul. - Aug.; two to five young; one litter per year.

American Beaver



Large-sized, brown rodent; naked tail, scaly and paddle-shaped. Large chestnut-colored front teeth and webbed short feet for swimming.

Habitat and Habits:



Lives in streams, rivers, ponds, or lakes.

Constructs houses of sticks, logs, and mud or burrows in banks; builds

dams serving as habitat. Lives 11 years. Two to four kits born Apr. - Jul.

Porcupine



Large rodent, size of small dog; chunky body with short legs. Color varies from black to brownish-yellow. Sharp spines on rump and tail.



Habitat and Habits:

Lives in forests or in brushy areas. Herbivorous; likes salt. Primarily

nocturnal. Lives 7 - 8 years. Mates in fall; one young born May - Jun.

Squirrel



Eastern Fox



Eastern Gray



Red

Small-sized with yellowish or reddish back and lighter underside; bushy tail. Includes Eastern Fox, Eastern Gray, and Red Squirrel.



Habitat and Habits:

Lives in open woodlands, forests, river bottoms, pine forests interspersed with hardwoods, and clearings.

Herbivorous. Lives up to 15 years. Two to seven young per litter.

Prairie Dog



Small-sized with tan to reddish fur; small ears and light-colored underside, black-tipped short tail.



Habitat and Habits:

Lives in dry upland prairies in colonies or "towns" of burrows. Herbivorous mostly but may eat some insects. Three to five young born Mar. - Apr.

Skunk



Hog-nosed



Spotted



Striped

Medium-sized with black fur and white markings. Includes Striped, Spotted, and Hog-nosed Skunk.



Habitat and Habits:

Lives in semi-open prairies, farming areas, thickets of shrubs or trees, rocky areas, and mixed woods near water. Omnivorous

except for Spotted Skunk, which is carnivorous. Mostly nocturnal. Two to seven young born Apr. - Jun.

■ summer range

■ winter range

■ all year range

■ not present

Wolverine



Dark brown and bear-like with yellowish stripes starting at the shoulder and joining at the rump.



Habitat and Habits: Lives close to the timberline or on the tundra. Omnivorous, primarily carnivorous.

Travels miles in search of food. Primarily nocturnal. Young born Feb. - Apr.

Nutria



Medium-sized, grayish-brown rodent with long, round tail with few hairs. Hind feet are webbed.



Habitat and Habits: Lives in marshes, swamps, ponds, and lakes. Herbivorous. Nocturnal. Lives four years. Two to eleven young born throughout year.

Common Muskrat



Small with brown to grayish-brown fur and grayish underside; black, scaly tail; partially-webbed hind feet.



Habitat and Habits: Lives in marshes, ponds, and streams. Omnivorous, feeding primarily on

aquatic vegetation, but also on frogs, and small fish on occasion. Two to six young per litter; 2 - 3 litters per year.

Red Fox



Medium-sized, usually reddish-yellow but sometimes gray; can range from darker to lighter; bushy tail with white tip; usually dark legs and paws.



Habitat and Habits: Lives in mixed woodlands, farming areas, and open country.

Carnivorous. Three to seven young born Apr. - May.

Common Gray Fox



Medium-sized with salt-and-pepper fur; face is white under gray and rust; rust color on neck, flanks, and legs; bushy tail topped with black stripe and tip.



Habitat and Habits: Lives in thickets of shrubs or trees, open woodlands, and rocky areas. Omnivorous. Mostly nocturnal.

Three to seven young born Apr. - May.

Kit Fox (Swift Fox)



Small to medium-sized with pale gray to buff yellow body; whitish underside; large ears; black-tipped tail.



Habitat and Habits: Lives in open deserts or plains with low vegetation. Carnivorous. Feeds primarily on small rodents and insects. Nocturnal. Four to seven pups born Feb. - Apr.

Mink



Medium-sized with dark brown fur and white chin patch; tail slightly bushy.



Habitat and Habits:

Lives along rivers, streams, marshes, ponds and lakes. Carnivorous.

Polygamous. Four to ten young born Jan. - Mar.

Long-tailed Weasel



Long-bodied and short-legged; brown back and white or yellow underside; long tail with black tip.



Habitat and Habits:

Lives on all types of land, preferably near water. Carnivorous. Mostly nocturnal.

Four to eight young born Apr. - May.

River Otter



Large and weasel-like with brown fur and silvery face, chin, and underside; feet webbed; tail thick at base.



Habitat and Habits:

Lives in aquatic habitats around marshes, ponds, and streams.

Carnivorous, feeding on fish, frogs, crayfish, and crustacea. Lives over 14 years. One to five young.

Fisher



Long bodied, dark brown to nearly black with grayish head.



Habitat and Habits:

Lives in mixed coniferous and hardwood forests. Good climbers and swimmers, at home on the

ground or in trees. Omnivorous, primarily carnivorous. One to six young born Mar. - Apr.

Pine Marten



Dark brown to blond, with an orange or tan throat patch, dark legs, light-colored head and long bushy tail.



Habitat and Habits:

Prefers coniferous forests or cedar swamps. Active late afternoon, early mornings,

and at night. Omnivorous, primarily carnivorous. Two to five young.

Ringtail



Small to medium-sized with yellowish gray to darker fur; long whitish and blackish-brown ringed tail; small head and medium-sized ears.



Habitat and Habits:

Lives in rocky ridges, cliffs, thickets of shrubs or trees, semi-deserts, and near water. Omnivorous.

Nocturnal. Can live up to 8 years. Three to four young born May - Jun.

Virginia Opossum



Small to medium-sized with gray to dark gray fur; whitish face, and small ears; rat-like tail.



Habitat and Habits:

Lives in woodlands, and farming areas; also found in urban areas.

Omnivorous.
Nocturnal.

Up to 14 young per litter several times a year. Young remain in mother's pouch for several months.

Eastern Cottontail Rabbit



Small with brownish-gray fur with cottontail; large ears but not as large as jackrabbit.



Habitat and Habits:

Lives in heavy brush in forests, farmlands, thickets of shrubs

or trees, swamplands, and weed patches. Herbivorous. Four to seven young per litter; 3 - 4 litters per year.

Black-tailed Jackrabbit



Medium-sized grayish-brown fur with large black-tipped ears and black streak on top of short tail.



Habitat and Habits:

Lives in prairies, shrublands, and semi-arid deserts. Herbivorous. Two to four young per litter.

Northern Bobwhite



Brown; male with white eyebrow and throat, dark streak across eyes; female with buff-colored eyebrow and throat.



Habitat and Habits:

Lives in fields, farmlands, and open woodlands. Makes a wide variety of calls, including "bob-white."

Nests in ground; 12 - 14 white eggs.

Upland Birds

Upland birds live in brushlands or woodlands where there is cover.

Popular upland birds that are found across the country include turkeys, pheasants, grouse, and quail.

Most male upland birds have brighter feathers or features than females. The female's plain feathers help her provide camouflage cover for her nest.

The basic shape of upland birds is similar to chickens—short rounded wings, short bills, and heavy bodies.

changed text under Upland Birds

Upland Bird's Feet

Grouse



Wild Turkey



Scaled Quail



Light to medium gray; black tips on feathers appear as scales; white crest.



Habitat and Habits:

Lives in arid grassland and scrub. Male and female make a "pey-cos" call. Nests in grass or

shrubs; 9 - 16 creamy white eggs.

■ summer range

■ winter range

■ all year range

■ not present

Gambel's Quail



Pale gray, black face outlined in white; back of head is rust-colored; teardrop-shaped topknot. Female is brown; buff-colored neck and smaller topnotch.



Habitat and Habits:

Lives in desert-like shrublands. Makes "coo-cut" and "chi-ca-co-coo" call.

Montezuma Quail (Mearns')



Male is rust and brown with white streaks on back; black and white pattern on face; rust-colored crest. Female is rust and brown above and buff below.



Habitat and Habits:

Lives in pine and oak woodlands. Call is a soft trilling whistle.

Mourning Dove



Light grayish-brown; lighter below; wings are darker; tail has tipped outer feathers.



Habitat and Habits:

Lives in dry uplands, grain fields, thickets of shrubs or trees, shrublands, and deserts. Unmated male

makes a "ooahoo-oo-oo-oo" sound. Breeding male and female make a short "ooahoo" call. Nests in trees; two white eggs.

White-winged Dove



Light grayish-brown; white line along edge of closed wing.



Habitat and Habits:

Lives in dry grasslands with shrubs and small trees. Makes

a soft "who-cooks-for-you" call. Nests in tree branches; 1 - 4 creamy white eggs.

Rock Dove (Pigeon)



Most often dark gray head, iridescent neck, and dark bars on wings.



Habitat and Habits:

Lives in cities, parks, bridges, and steep cliffs. Male and female make a "coo-coo" sound when breeding. Nests

on building ledges, rafters, and barn beams; 1 - 2 white eggs.

American Woodcock



Brownish with lighter buff breast; large, lighter-colored head; short neck; large dark eyes. Very long, straight bill.



Habitat and Habits:

Lives in woods and thickets near open areas. Makes a "peeent" sound. Nests in depressions in ground; four buff-colored eggs with brown markings.

Greater Prairie Chicken



Chicken-like with barred body and short black tail; male displays black feathers on sides of neck. Inflates yellow-orange air sacs during courtship.



Habitat and Habits:

Lives in tall-grass prairies. Makes cackling and clucking

sound; male makes booming sounds during courtship. Nests in depression; 7 - 17 olive-colored eggs with dark marks.

Lesser Prairie Chicken



Slightly smaller and paler than Greater Prairie Chicken. Inflates orange-red air sacs during courtship.



Habitat and Habits:

Lives in short-grass prairies. Makes cackling and clucking sound; male

makes booming sounds during courtship. Nests in depression; 11 - 13 yellowish eggs with brown marks.

Ring-necked Pheasant



Large, chicken-like bird. Male is gold-colored with white neck band; green and purple iridescent head; red wattle around eyes. Hen is dull brown with dark flecks on wings and back. Both have long tail feathers.



Habitat and Habits:

Lives in farmlands near woods. Male makes "skwagock"

cackle; female "kia-kia" sound. Flies for short distances. Nests in grasses and shrubs; 10 - 12 brownish-green eggs.

Ruffed Grouse



Brown to grayish-brown, with black ruffs (sides of neck). Chicken-like in form with slight crest.



Habitat and Habits:

Lives in forests with dense undergrowth and brushy areas. Alarm call is

a sharp "quit-quit"; female makes soft clucking sound. Nests under brush; 9 - 12 buff-colored eggs.

Wild Turkey



Large, long-legged bird with dark, iridescent body; featherless, reddish head. Male is larger and more iridescent than female.



Habitat and Habits:

Lives in open woodlands, brush country, thickets of shrubs

or trees, river bottoms, and hardwoods. Polygamous males. Mating call is a gobble; normal calls are clucks, putts, and purrs. Nests in depressions; 6 - 20 whitish eggs.

American Crow



Stocky, all-black bird with fan-shaped tail.



Habitat and Habits:

Lives almost anywhere except deserts and pine forests. Makes a "caw-caw" call. Nests in trees; 4 - 6

eggs, green-colored with brown spots.

revised map

■ summer range

■ winter range

■ all year range

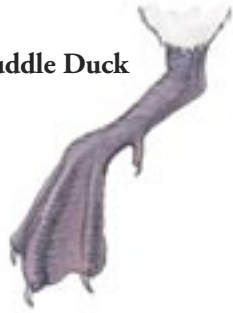
■ not present

Waterfowl Feet

Diving Duck



Puddle Duck



Waterfowl

Waterfowl are warm-blooded animals that live on or near water, and include diving ducks and puddle ducks.

Diving ducks live on lakes and deep ponds and dive for fish, crustaceans, and water plants. They run on top of the water to take off.

Puddle ducks live on shallow ponds and marshes, where they eat seeds and grasses. They spring into the air to fly.

Eclipse refers to the plumage of male birds when they lose their bright plumage after breeding, and resemble females for a few weeks.

changed text under Waterfowl



Puddle Duck

surface-feeds on fresh, shallow marshes and rivers



Diving Duck

dives for food in deeper lakes and rivers, coastal bays, and inlets



Goose or Swan

large, long-necked waterfowl



Northern Pintail



Long-necked, slender duck with pointed tail. Male has dark brown head; white breast and neck, gray flanks and wings. Female has light brown-speckled body; light brown head and neck; gray bill.

Habitat and Habits:

Summers on marshes and ponds; winters on coastal bays, lakes, and grain fields. Female quacks coarsely; male whistles. Nests near water; 6 - 12 light green eggs.



Drake



Hen



Eclipse Drake



Drake



Hen



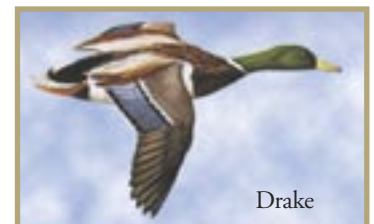
Mallard



Most common duck. Male often called "greenhead."

Habitat and Habits:

Found in deep lakes, slow rivers, ponds, and sometimes bays. Main wintering area is the lower Mississippi basin and along the Gulf Coast; many as far north as open waters permit. Female quacks loudly; male makes quiet "yeeb" or low "kwek." Nests near water; 8 - 10 greenish-white eggs.



Drake



Hen



Eclipse Drake



Drake



Hen

■ summer range

■ winter range

■ all year range

■ not present



Gadwall



Male is gray with light brown head; white patch on back of wing; black rump. Female is mottled brown with white patch on back of wing.

Habitat and Habits:

Found on open lakes and marshes. Male makes a whistle and "kack-kack." Nests on islands in colonies; 7 - 13 white eggs.



Drake



Hen



Eclipse Drake



Drake



Hen



American Wigeon



Male is brown with white crown, green eye patch; green and white on wings visible in flight. Female is mottled brown with gray head. Both have pale blue bill.

Habitat and Habits:

Found on lakes, marshes, and ponds. Makes quacking and whistling sound. Nests in grasses near water; 9 - 11 cream eggs.



Drake



Hen



Eclipse Drake



Drake



Hen



Northern Shoveler



Male has dark green head, white breast, rust-colored wings. Female is brown-flecked with pale blue on shoulders.

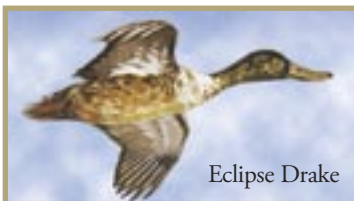
Habitat and Habits: Found on shallow lakes and ponds, and sometimes on brackish marshes. Male makes a croak; female quacks. Nests in grasses, not always near water; 6 - 14 pale green eggs.



Drake



Hen



Eclipse Drake



Drake



Hen



Blue-winged Teal



Male is brown and buff speckled; gray head with white crescent in front of eye; pale blue patch on wings. Female is brown speckled; smaller pale blue patch on wings.

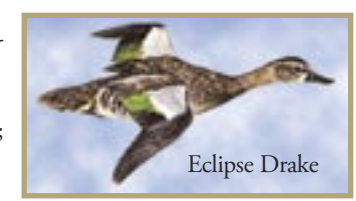
Habitat and Habits: In summer found on small lakes in open grasslands; in winter on marshes and coastal areas. Male peeps; female quacks. Nests in grasses near water; 6 - 15 white eggs.



Drake



Hen



Eclipse Drake



Drake



Hen

■ summer range

■ winter range

■ all year range

■ not present



Cinnamon Teal



Male has reddish body, neck, and head with black coloring on top of head, wings, and back. Female is speckled brown with white around bill.

Habitat and Habits: Found on lakes and marshes. Male whistles; female quacks. Nests in grasses; 7 - 12 pinkish eggs.



Green-winged Teal



Male is gray with white vertical bar on shoulder; rust head with green band. Female is speckled dark brown and white with dark band across eye.

Habitat and Habits: In summer found on ponds and lakes; in winter on rivers and coastal marshes. Male whistles; female quacks. Nests in grasses not always near water; 7 - 15 pale green eggs.

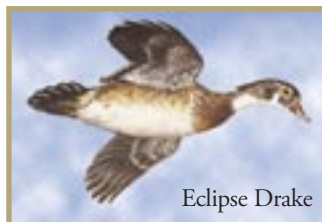


Wood Duck



Male has colorful crested head and red eyes; iridescent greens, purples, and blues over entire body with white marking. Female is light brown speckled and has white-ringed eyes.

Habitat and Habits: Found on swamps, ponds, and rivers near wooded areas. Male makes a "hoo-w-ett" call; female a "oo-eek." Nests in tree cavities; 10 - 15 dull whitish eggs.



Black Duck



Sexes are similar. Large brown duck with paler brown head and neck; violet patch on wings.

Habitat and Habits: Summers on freshwater and saltwater marshes; winters along coast. Female quacks when separated from male; male makes soft, reedy noise. Nests in depressions in ground, close to water; 6 - 12 eggs, cream to greenish-buff colored.



■ summer range

■ winter range

■ all year range

■ not present



Whistling Ducks

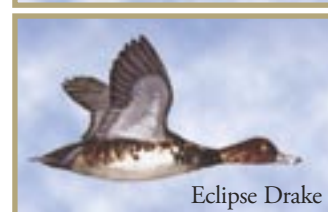


Male and female fulvous duck have reddish-brown body with darker back. Male and female black-bellied duck have gray head, light brown back, black underside, and white on sides.

Habitat and Habits: Fulvous is found in fields, ponds, and marshes; black-bellied on ponds and marshes. All make a whistling call. Fulvous nests in grasses; black-bellied in tree cavities. Both have 12 - 14 whitish eggs.

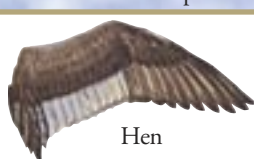


Redhead



Male is gray with reddish head and black breast. Female is brown with darker brown back and crown.

Habitat and Habits: Found on lakes and bays. Male makes "meow" sound or quacks; female makes a soft low call. Nests in rushes and grasses; 9 - 13 pale eggs.



Canvasback

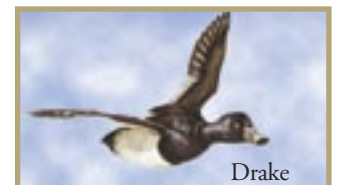


Male has white body; reddish head; black breast, bill, and tail. Female has gray body and brown head.

Habitat and Habits: In summer found on lakes and marshes; in winter on lakes and coastal waters. Male coos during breeding; female quacks. Nests in reeds and grasses; 7 - 12 greenish eggs.

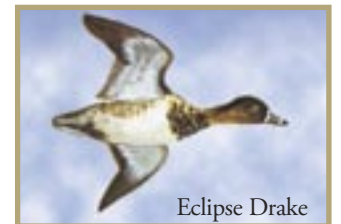


Ring-necked Duck



Male is black with pale gray sides. Female is brown with darker back and has white-ringed eyes.

Habitat and Habits: In summer found on lakes and marshes; in winter on large lakes and coastal areas. Nests in grasses near water; 6 - 14 pale green eggs.



■ summer range

■ winter range

■ all year range

■ not present

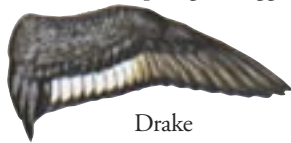


Lesser Scaup



Male has white flanks with dark head, breast, and tail; speckled gray back. Female is dark brown with white spots on either side of bill base.

Habitat and Habits: In summer found on lakes and marshes; in winter on lakes and coastal areas. Male makes a purring call; females are mostly silent. Nests in grasses near water; 8 - 14 pale green eggs.



Common Goldeneye



Male has white flanks, black head and back with round white spot below eye. Female is gray with dark head and white collar.

Habitat and Habits: In summer found on lakes and marshes; in winter on lakes and coastal areas. Male makes shrill whistle and female a low quack during breeding. Otherwise, usually quiet. Nests in tree cavities; 5 - 15 light green eggs.

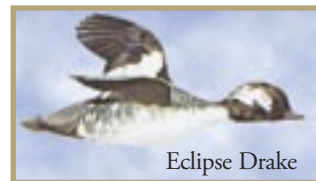


Bufflehead



Male is mostly white with black back and white patch at back of head. Female is grayish with white patch below eye.

Habitat and Habits: In summer found on lakes and rivers near woods; in winter on lakes and coastal areas. Male is usually silent; female quacks. Nests in tree cavities; 8 - 10 buff eggs.

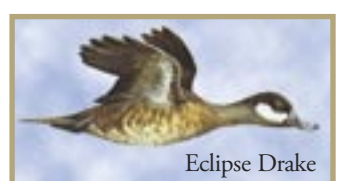


Ruddy Duck



Male is reddish-brown with black head and white cheek; in winter male looks similar to female. Female is brown, darker on head and back.

Habitat and Habits: In summer found on lakes; in winter on coastal areas. Both sexes are mostly silent. Nests in grasses near water; 6 - 10 white eggs.



■ summer range

■ winter range

■ all year range

■ not present

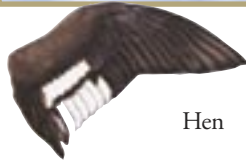
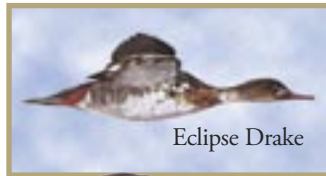


Red-breasted Merganser



Male has dark green head, white neck, rusty red breast, and gray sides. Female is gray speckled with light red head and grayish neck.

Habitat and Habits: In summer found on rivers and lakes; in winter on coastal areas. Nests under shrubs and logs; 5 - 11 greenish eggs.

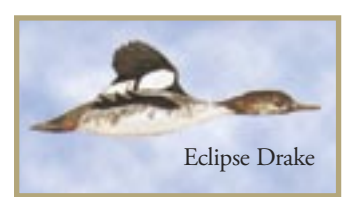


Common Merganser



Male has dark green head, dark back; white neck and underside. Female is grayish-brown with reddish-brown head and white breast.

Habitat and Habits: In summer found on lakes and rivers near woods; in winter on freshwater lakes and ponds. Nests in tree cavities and rock crevices; 8 - 11 cream eggs.

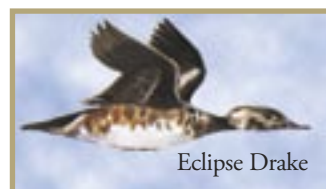
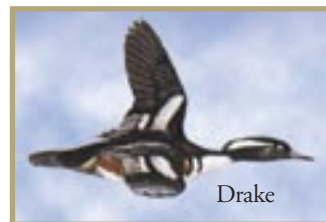


Hooded Merganser



Male has dark crested head with white patches, brownish sides, and white breast. Female is gray with reddish-brown crest and lighter gray breast.

Habitat and Habits: In summer found on rivers and lakes in wooded areas; in winter on coastal areas. Male makes a croak-like sound; female a "gak." Nests in tree cavities; 6 - 18 white eggs.



Trumpeter Swan

One of the largest, rarest North American waterfowl. All white with a black bill. (Swans, unlike snow geese, do not have black wingtips. Also, swans are much larger and have longer necks than snow geese.)

Habitat and Habits: Almost driven into extinction, their numbers have been increasing due to conservation efforts. Prefer bodies of water with dense vegetation. Found in marshes, lakes, and rivers mostly in the Northwest. Nests in bulrushes and beaver lodges; 4 - 6 whitish eggs.



■ summer range

■ winter range

■ all year range

■ not present

Greater White-fronted Goose



Male and female are brown with white ring around base of bill; black bars on belly; orange bill and feet.



Habitat and Habits: In summer found on tundra; in winter on fields and marshes. Male and female make a high-pitched "kow-kow-kow-kow."

Nests in depressions; 4 - 7 whitish eggs.

Snow Goose



Male and female are white with dark gray on underside of wings. Short neck and large head.



Habitat and Habits:

In summer found on tundra; in winter on fields and wetlands. Male and female both honk. Nests in colonies; in grasses near water; 3 - 5 white eggs.

Canada Goose



"Adult & Immature" removed from Canada Goose. confirmed by Ducks at a Distance

Both male and female are brownish-gray; black head and tail; white patch on cheek, breast, and underside.



Habitat and Habits:

Found on lakes, marshes, fields, and parks. Male and female make honking call. Nests on water edges; 4 - 7 white eggs.

Sandhill Crane



Tall, grayish with some reddish coloring on back and red patch above bill. Immature is also gray, but more reddish and without red patch above bill.

Habitat and Habits:

In summer found on tundra, wetlands, prairies, and in fields; in winter found in shallow ponds, marshes and in fields. Makes a low-pitched call. Nests in grasses in or near water; 1 - 3 pale green eggs.



Wetland Birds

Wetland birds live close to water in marshy and coastal areas. Examples are cranes and pelicans.

changed text under Wetland Birds

Whooping Crane



Tall, white with black patches on face and red crown. Immature is white with reddish head and wing tips.

Habitat and Habits:

In summers found on marshes; in winter on coastal areas. Nests in grasses in or near water; 1 - 3 buff-colored eggs.



■ summer range

■ winter range

■ all year range

■ not present

Wilson's (Common) Snipe

Long-billed, dark brown and black shorebird with white stripes on head and back. Outer tail feathers are white with black bars. Flies in zigzag pattern.

**Habitat and Habits:**

Found in wet meadows and freshwater marshes; in winter also found in saltwater marshes. Makes a

"scaip" call when flushed. Nests in depressions in marshy areas; 4 yellowish-olive-colored eggs with brown spots and brown circle at large end.

American White Pelican

Large with white body and large orange bill and throat pouch. Immature has gray bill and pouch.

**Habitat and Habits:**

In summer found on marshes and lakes; in winter on coastal areas. Usually quiet. Nests in depressions near water; 1 - 3 white eggs.

Brown Pelican

Large with grayish-brown body and dark bill and throat pouch.

Habitat and Habits:

Found exclusively on coastal areas year round. Usually makes no sound. Nests on high ground in dirt in colonies; 2 - 4 white eggs.

**Birds of Prey**

Birds of prey feed on other birds or mammals. Examples are eagles, falcons, and owls. Birds of prey are found throughout North America.

changed text under Birds of Prey

Bald Eagle

Large, dark bird with white head and tail, and yellow bill. Immature: Brownish speckled with more white under wings and belly.

Habitat and Habits:

Found on lakes, rivers, and coastal areas. Makes a loud screech. Nests on cliffs or in trees; 1 - 3 pale blue eggs.

**Golden Eagle**

Large, dark bird. Immature: Dark with white patches under wings and on tail.

Habitat and Habits:

Found in mountains, foothills, sagebrush plains, grasslands, and open woodlands. Mostly quiet. Nests on cliffs, on ground, or in trees; 1 - 4 speckled eggs.

**Northern Harrier (Marsh Hawk)**

Male is grayish brown with lighter underside. Female is larger and brown with streaked underside. Both have white patch on rump.

**Habitat and Habits:**

Found in fields, grasslands, and marshes. Generally quiet unless alarmed.

Nests on ground; 3 - 9 pale blue eggs.

■ summer range

■ winter range

■ all year range

■ not present

revised map

Peregrine Falcon



Large, speckled brown falcon with bluish-gray back, darker head, and lighter neck and chest. Immature: Streaked belly and breast.

Habitat and Habits:

Found near cliffs, urban, and coastal areas. Makes a high-pitched “ki-ki-ki-ki” call. Nests in cliffs; 3 - 4 white eggs.



Common Barn Owl



Light brown with white heart-shaped face, dark eyes, and white breast.

Habitat and Habits:

Found in fields, grasslands, deserts, and suburban areas. Makes a screeching call. Nests in abandoned buildings, tree hollows, and holes in ground; 4 - 7 white eggs.



Burrowing Owl



Light brown speckled white neck and lighter chest; yellow eyes.

Habitat and Habits:

Found in fields, grasslands, and deserts. Makes a “coo-coo” call. Nests in burrows deserted by small mammals; 6 - 11 white eggs.



Great Horned Owl



Large, grayish with brown specks; yellow eyes and ear tufts.

Habitat and Habits:

Found almost everywhere. Makes a rhythmic hooting call. Nests in nests abandoned by other birds and small mammals; 1 - 4 white eggs.



Eastern Screech Owl



Small, light reddish-brown or grayish owl with ear tufts and yellow eyes.

Habitat and Habits:

Found in woods, swamps, and suburban areas. Makes whining call. Nests in tree cavities; 3 - 5 white eggs.



Barred Owl



Large, grayish-brown with cross-barring on neck and chest, striping on belly; dark eyes and no ear tufts.

Habitat and Habits:

Found in densely forested areas and wooded swamps. Makes “hoo-hoo-hoo-hoo” call and also screams. Nests in tree cavities; 2 - 4 white eggs.



revised map

■ summer range

■ winter range

■ all year range

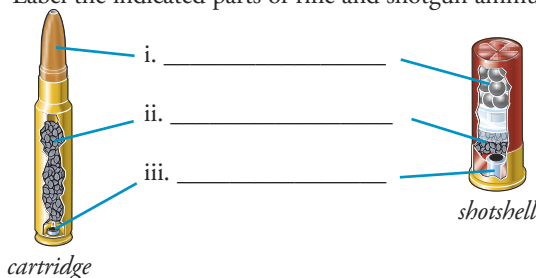
■ not present

Chapter 1

- A primary objective of hunter education programs is to _____.
 - give every hunter the same degree of skill and knowledge.
 - ensure that everyone enjoys hunting and has an opportunity to hunt.
 - produce knowledgeable, responsible, and involved hunters.
 - none of the above.
- Name three hunting-related projects for which the Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act) provides funding:
 - _____
 - _____
 - _____
- Which of these is not a source of hunter education funding?
 - State highway departments
 - State wildlife agencies
 - International Hunter Education Association
 - U.S. Fish and Wildlife Service
- Name three behaviors of a responsible hunter:
 - _____
 - _____
 - _____

Chapter 2

- The three basic parts of a modern firearm are _____.
 - cartridge, stock, and barrel.
 - action, stock, and barrel.
 - stock, trigger, and action.
 - barrel, chamber, and muzzle.
- Label the indicated parts of a bolt action rifle:
 - _____
 - _____
 - _____
 - _____
- The chemical compound in ammunition that ignites the gunpowder when struck by a firing pin is the _____.
- The action of a firearm is made up of parts that _____.
 - block the trigger or hammer to prevent accidental firing.
 - hold ammunition before it's loaded into the chamber.
 - load, unload, fire, and eject the cartridge or shotshell.
 - serve as the handle of the firearm.
- You should use only ammunition that exactly matches the caliber or gauge specifications marked on the _____ of your firearm.
- Label the indicated parts of rifle and shotgun ammunition:



- List six types of firearm actions:
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
- A safety is located around the receiver of the firearm and _____.
 - ensures that the firearm can never be accidentally fired.
 - is a device that blocks the action to prevent accidental firing.
 - is always located either inside or on the trigger guard.
 - all of the above.
- The most accurate sight for a firearm is the _____.
- The design feature that causes a bullet to spiral, which increases accuracy and distance, is called _____.
- _____ is a measure related to the diameter of the bore and the size of the shotshell designed for that bore.
- When referring to firearms, "caliber" is _____.
 - the length of the barrel of a rifle or handgun.
 - always expressed in hundredths of an inch.
 - used to describe the size of a rifle bore and the size of cartridges designed for different bores.
 - all of the above.
- List the most common shotgun chokes:
 - _____
 - _____
 - _____
 - _____
- Steel shot is _____.
 - lighter than lead shot, reducing velocity and distance.
 - harder than lead, keeping pattern tighter.
 - non-toxic, unlike lead shot that can be toxic to waterfowl.
 - all of the above.
- Knowing your firearm's range is critical—it allows you to _____.
 - determine whether or not you're able to make a clean kill.
 - make accurate shots at any distance as long as they are within your firearm's range.
 - know at what distances your firearm could cause injury.
 - both a. and c.
- Different gauge shotshells should not be mixed together because _____.
 - once mixed, it is impossible to accurately separate them.
 - a smaller gauge shotshell can slip past the chamber of a larger gauge gun and result in serious personal injury.
 - a 12-gauge shotshell can be chambered into a 20-gauge shotgun and result in serious personal injury.
 - none of the above.
- Firearms should be stored _____, in a _____ location, separate from _____.

Chapter 3

- Good marksmanship is _____.
 - being able to hit your target at least 50 percent of the time.
 - correctly marking your target.
 - being a good sport if you miss your target.
 - accurately and consistently hitting your target.
- Sight alignment is _____.

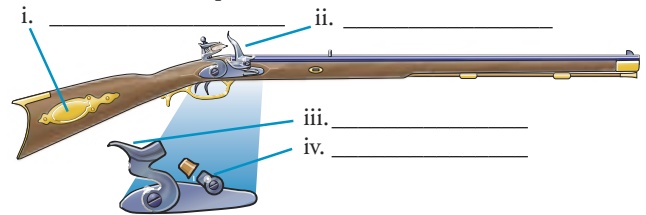
3. To help you steady the rifle when you're ready to shoot, draw a deep breath and _____.
4. The proper technique for pulling the trigger when shooting a rifle is to _____.
 - a. pull the trigger quickly, moving only your finger.
 - b. squeeze the trigger slowly.
 - c. jerk the trigger.
 - d. snap the trigger.
5. Of the four standard rifle positions, the steadiest is the _____ position.
6. All handguns should be fired at _____ length.
7. If you are hunting small, fast birds like dove or quail, the best choke selection would be _____ or _____ choke.
8. When patterning a shotgun, the number of holes made in a 30-inch circular target at a range of 40 yards should be _____ to _____ percent of the number of the pellets in the load, based on the choke you are using.
9. Which shotgunning technique is best for a beginning hunter and is performed by pointing at a moving target and then moving past it and firing?
 - a. snap-shooting
 - b. swing-through
 - c. sustained lead
 - d. patterning
10. A common error when hunting birds with a shotgun is _____.
 - a. tapping the trigger and not squeezing it slowly.
 - b. bringing the stock all the way up to the cheek without lowering the head.
 - c. lowering the head and cheek to the stock of the shotgun.
 - d. failing to properly align the sights on the target and then take a deep breath.
6. The most effective place to shoot an animal is the vital organs, which are the _____ and _____.
7. A _____ shot is the preferred shot for larger game animals such as deer, antelope, and bear.
 - a. quartering-away
 - b. broadside
 - c. straight-on
 - d. quartering-forward
8. When approaching a downed deer or other large animal, you should _____.
 - a. approach from the front and make noise to startle the animal.
 - b. pause behind the animal's head and watch the chest cavity for any movement.
 - c. approach from the front if the animal's eyes are closed.
 - d. any of the above are safe methods for approaching downed animals.
9. Once you are sure your quarry is dead, you should immediately _____ it and then begin field dressing.
10. _____ would not contribute to meat spoiling.
 - a. Cold
 - b. Dirt
 - c. Moisture
 - d. Heat

Chapter 4

1. It is critical that you know about the game you are hunting because _____.
 - a. only one sex of the game you're hunting may be legal.
 - b. there may be protected species in the same area that you need to avoid shooting.
 - c. it will increase your chance of success.
 - d. all of the above.
2. List the four basic characteristics for animal identification:
 - i. _____
 - ii. _____
 - iii. _____
 - iv. _____
3. Unlike still hunting, stalking involves _____.
 - a. following signs left by the animal.
 - b. spending at least ten times longer being still and observing rather than walking.
 - c. using a game call.
 - d. using dogs to locate the game.
4. _____ is a hunting technique that involves a group of hunters spread out and moving to push the game towards other hunters waiting at the end of the cover.
5. A true sportsman not only strives to bring home the game he or she's seeking but also strives to _____ the quarry.
 - a. fire as soon as possible on
 - b. cripple
 - c. inflict the minimal amount of suffering on
 - d. none of the above

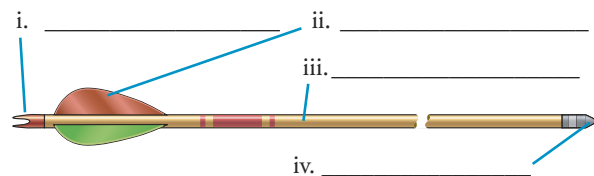
Chapter 5

1. Label the indicated parts of a muzzleloader:



2. _____ is the only type of powder that should be used in muzzleloaders.
3. An unsafe practice when using a muzzleloader is _____.
 - a. loading directly from a horn, flask, or other container.
 - b. wearing shooting glasses and ear protection when shooting.
 - c. waiting until you're ready to fire before you prime or cap a muzzleloader.
 - d. not smoking while shooting or loading.
4. How many charges should you load in a muzzleloader at a time?
 - a. one charge
 - b. two charges
 - c. three charges
 - d. four charges
5. Name the three common bow types:
 - i. _____
 - ii. _____
 - iii. _____

6. Label the indicated parts of an arrow:



7. _____ arrowheads are primarily used for big game hunting.

8. _____ is the process of placing the arrow shaft on the bow's arrow rest and, with the thumb and index finger, pulling the arrow back until the string snaps into the slot.
9. A good safety rule to follow when shooting a bow is _____.
 - a. always carry arrows in the nocked position when hunting.
 - b. use cracked arrows only for target practice.
 - c. release an arrow only when the path to the target and beyond is clear.
 - d. dry fire a bow as a strengthening exercise.
11. _____ should be worn at all times while climbing a tree and when on a tree stand.
 - a. Climbing boots
 - b. Thick outerwear
 - c. A safety harness
 - d. Camouflage outerwear
12. To get your firearm into an elevated stand safely, _____.
 - a. climb into the stand using the cradle carry.
 - b. climb into the stand and have your companion carefully toss your firearm up to you.
 - c. climb into the stand using the sling carry.
 - d. haul up the unloaded firearm after you have secured yourself in the stand.

Chapter 6

1. To minimize the risk of a firearm incident in the home, you should never _____.
 - a. point the muzzle in a safe direction.
 - b. keep your finger off the trigger when handling the firearm.
 - c. store the firearm and ammunition together.
 - d. check that the chamber and the magazine are empty.
2. Name the four main causes of hunting incidents:
 - i. _____
 - ii. _____
 - iii. _____
 - iv. _____
3. List the four primary rules of firearm safety:
 - i. _____
 - ii. _____
 - iii. _____
 - iv. _____
4. If three hunters are walking side by side, the hunter in the center should keep the gun pointed _____ or _____.
5. If three hunters are walking in single file, it is acceptable for the hunter in the center to use the _____.
 - a. cradle carry.
 - b. elbow or side carry.
 - c. shoulder carry.
 - d. trail carry.
6. If crossing a fence while hunting alone, you should _____.
 - a. cross the fence with the gun held under your arm.
 - b. place the gun on the other side of the fence with muzzle pointed away from you and then cross.
 - c. set the gun down, cross, and then pull the muzzle to you.
 - d. any of the above.
7. To load or unload a firearm safely, you should always _____.
 - a. put the safety on.
 - b. dry fire the firearm before loading and after unloading.
 - c. point the muzzle in a safe direction.
 - d. both a. and c.
8. _____ is not a safe way to transport a firearm.
 - a. Unloaded
 - b. With the action open
 - c. In a gun case
 - d. Loaded and in a gun rack in the rear window
9. Hunters should be spaced _____ yards apart and each have a zone-of-fire of _____ degrees in front.
10. Consuming alcohol before or during a hunt does not _____.
 - a. impair your coordination.
 - b. increase your chance of a hunting incident.
 - c. affect your judgment.
 - d. enhance your chance of a successful hunt.
11. When hunting from a boat, it is best to always wear a _____.
 - a. personal flotation device.
 - b. camouflage jacket.
 - c. red jacket.
 - d. safety harness.
12. If trapped alone in cold water, pull your _____ to your chest and keep your elbows _____.
 - a. head
 - b. arms
 - c. legs
 - d. torso

Chapter 7

1. Which of these was not a reason for establishing hunting laws?
 - a. to limit hunting methods and equipment
 - b. to limit the profits of sporting goods manufacturers
 - c. to set rules on how hunters take game
 - d. to limit harvesting and avoid hunting during nesting and mating seasons
2. According to Aldo Leopold, the "father of wildlife management," ethical behavior is _____.
 - a. killing game only for food.
 - b. harvesting as much game as the law allows.
 - c. doing the right thing when no one else is watching—even when doing the wrong thing is legal.
 - d. not killing any wildlife but preserving it for future generations.
3. A responsible and ethical hunter would not _____.
 - a. waste meat and usable parts of the game harvested.
 - b. strive for a quick, clean kill.
 - c. leave the land better than he or she found it.
 - d. abide by game laws and regulations.
4. Responsible hunters _____.
 - a. use land without asking permission from the landowner.
 - b. keep firearms out of sight when not hunting.
 - c. draw attention to themselves by wearing bloody or dirty hunting clothes when it's not necessary.
 - d. unnecessarily harass or frighten livestock.
5. There are five distinct stages of development that most hunters will experience. The most responsible and ethical is the _____ stage.
6. In the _____, success is determined by bagging the limit, which can cause hunters to take unsafe shots.
 - a. shooting stage
 - b. limiting-out stage
 - c. trophy stage
 - d. sportsman stage
7. To bring respect to the sport of hunting, hunters can _____.
 - a. transport bagged animals on the hood or roof of their automobiles.
 - b. share graphic accounts and photographs of their hunting experiences with non-hunters.
 - c. support organizations dedicated to improving habitat and management efforts.
 - d. consume alcohol and loudly proclaim their hunting prowess.

Chapter 8

- There are four ways to prepare for a hunting trip: be ready, know your location, prepare for safety, and _____.
- _____ would not be an essential part of a hunting plan that you would leave with a family member or friend.
 - The number of game you plan to harvest
 - Where and with whom you intend to hunt
 - Specific directions on the route to your destination
 - When you expect to return
- The most important clothing choice is _____ clothing.
 - bright red
 - hunter green
 - fluorescent orange
 - camouflage
- If dressing for cold weather conditions, you should _____.
 - wear several layers of clothing instead of one heavy article of clothing.
 - wear cotton since it can provide warmth even when wet.
 - wear wool.
 - both a. and c.
- When laid on a map, a compass needle points to _____.
 - the direction you're heading.
 - true north.
 - magnetic north.
 - contour lines.
- List the five primary requirements for survival:
 - _____
 - _____
 - _____
 - _____
 - _____
- The international emergency signal for distress is _____.
 - three fires evenly spaced.
 - three shots.
 - three blasts of a whistle.
 - any of the above.
- List four of the eight rules of survival that every hunter should follow:
 - _____
 - _____
 - _____
 - _____
- Hypothermia can be prevented by _____.
 - staying dry.
 - dressing properly.
 - exposing yourself to the wind to dry out if wet.
 - both a. and b.
- Heat exhaustion can be prevented by _____ water.
- Bleeding should be controlled by applying _____ to the wound.
 - butter
 - fresh air
 - direct pressure
 - cold water
- If a hunting companion breaks a leg and no medical help is readily available, you should _____.
 - try to straighten the limb and put a splint on it.
 - not try to straighten the limb; splint it the way you found it.
 - leave the leg exposed to the air to reduce the swelling.
 - not splint it, but place a thick pad around it.
- Wildlife preservation _____.
 - allows for the consumptive use of natural resources.
 - is a Biblical rule for saving natural resources.
 - saves natural resources but with no consumptive use of them.
 - allows hunting of endangered species.
- A habitat for wildlife must include _____.
 - space, arrangement, food, cover, and water.
 - brush and rocks, predators, water, and space.
 - space, vegetation, food, and resting and breeding places.
 - cover, predators, large area, arrangement, and food.
- The "carrying capacity" of a wildlife area is the _____.
- List four factors that can limit wildlife populations:
 - _____
 - _____
 - _____
 - _____
- Hunting is an effective wildlife conservation tool because _____.
 - funding from hunting licenses helps many game and non-game species recover from dwindling populations.
 - hunters play an important role by supplying wildlife managers with needed information from the field.
 - hunting contributes to threatened or endangered wildlife.
 - both a. and b.
- By continuously monitoring the birth rate and death rate of various species and the condition of their habitat, wildlife managers _____.
 - know how to set hunting regulations and determine if other management practices are needed to conserve wildlife species.
 - know when to ignore hunting regulations they set earlier.
 - can obtain data to eliminate wildlife species.
 - both b. and c.
- Trapping and relocating animals is an example of the _____ wildlife management practice.
 - hunting
 - artificial stocking
 - setting bag limits and legal methods for taking wildlife
 - habitat improvement
- The five groups of wildlife are _____.
 - large mammals, cud chewers, small mammals, upland birds, and waterfowl.
 - large mammals, small mammals, upland birds, waterfowl, and antlers.
 - large mammals, small mammals, upland birds, cud chewers, and protected or endangered waterfowl.
 - large mammals, small mammals, upland birds, waterfowl, and protected or endangered species.
- It is critical that hunters are able to identify wildlife correctly so that they don't mistakenly _____.
 - harvest illegal game animals or non-game animals.
 - confuse horns with antlers.
 - confuse cloven hooves with cud chewers.
 - confuse meat-eating animals with those that eat meat as well as plants.

Chapter 9

- Wildlife conservation ensures that _____.
 - hunting seasons established by Kublai Khan will continue.
 - no animals are ever harvested.
 - natural resources can be drawn on despite unwise use.
 - renewable resources can replenish themselves indefinitely.

This is a blank sheet of white paper designed for writing. It features a series of evenly spaced horizontal green lines across its entire width. A single vertical red line runs down the left side, creating a narrow margin. The paper is otherwise empty, with no text or other markings.

[illegible]

[illegible]

[illegible]

International Hunter Education Association (IHEA)

P.O. Box 490
Wellington, CO 80549
970-568-7954
Fax: 970-568-7955
www.ihea.com

The Izaak Walton League of America

707 Conservation Lane
Gaithersburg, MD 20878-2983
301-548-0150
E-mail: general@iwla.org
www.iwla.org

National Bowhunter Education Foundation (NBEF)

P.O. Box 180757
Ft. Smith, AR 72918
479-649-9036
E-mail: mbentz@nbef.org
www.nbef.org

National Rifle Association (NRA)

11250 Waples Rd.
Fairfax, VA 22030
703-267-1500
www.nra.org

National Shooting Sports Foundation

Flintlock Ridge Office Center
11 Mile Hill Rd.
Newtown, CT 06470-2359
203-426-1320
www.nssf.org

Ducks Unlimited

One Waterfowl Way
Memphis, TN 38120
901-758-3825
www.ducks.org

Foundation for North American Wild Sheep

720 Allen Ave.
Cody, WY 82414
307-527-6261
www.fnaws.org

National Wild Turkey Federation (NWTf)

P.O. Box 530
Edgefield, SC 29824
1-800-THE-NWTf
www.nwtf.org

Pheasants Forever

1783 Buerkle Circle
St. Paul, MN 55110
877-773-2070
www.pheasantsforever.org

Quail Unlimited

P.O. Box 610
Edgefield, SC 29824
803-637-5731
www.qu.org

Hunter's Resource Directory

Rocky Mountain Elk Foundation

P.O. Box 8249
Missoula, MT 59807
1-800-225-5355
www.rmef.org

The Ruffed Grouse Society

451 McCormick Rd.
Coraopolis, PA 15108
412-262-4044
www.ruffedgrousesociety.org

Waterfowl USA

P.O. Box 50
Edgefield, SC 29824
803-637-5767
www.waterfowlusa.org

Whitetails Unlimited

P.O. Box 720
Sturgeon Bay, WI 54235
920-743-6777
www.whitetailsunlimited.com

added
this
listing





"The conservation of natural resources is the fundamental problem. Unless we solve that problem it will avail us little to solve all others."

— Theodore Roosevelt, U.S. President
Memphis, Tennessee, October 12, 1907

"Defenders of the short-sighted men who in their greed and selfishness will, if permitted, rob our country of half its charm by their reckless extermination of all useful and beautiful wild things sometimes seek to champion them by saying 'the game belongs to the people.' So it does; and not merely to the people now alive, but to the unborn people."

— Theodore Roosevelt, 1916
U.S. President

"A peculiar value in wildlife ethics is that the hunter ordinarily has no gallery to applaud or disapprove of his conduct. Whatever his acts, they are dictated by his own conscience, rather than by a mob of onlookers...."

— Aldo Leopold
A Sand County Almanac

"...only the hunter, imitating the perpetual alertness of the wild animal, for whom everything is danger, sees everything."

— José Ortega y Gasset
Meditations on
Hunting,
as translated by
Howard Wescott

